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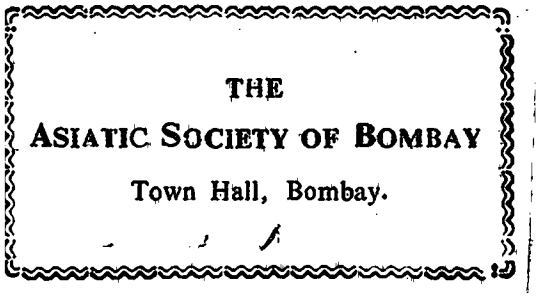

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THE

WORKS

OF

JOHN LOCKE,

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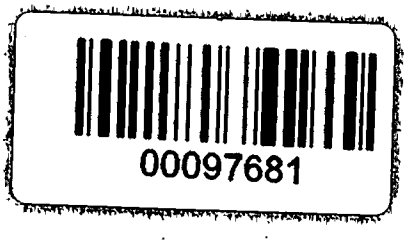

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OF

HUMAN UNDERSTANDING.

BOOK IV. CHAP. V.

Of Truth in General.

§. 1. WHAT is truth was an inquiry many ages since; and it being that which all mankind either do, or pretend to search after, it cannot but be worth our while carefully to examine wherein it consists, and so acquaint ourselves with the nature of it, as to observe how the mind distinguishes it from falsehood. What truth is.

§. 2. Truth then seems to me, in the proper import of the word, to signify nothing but the joining or separating of signs, as the things signified by them do agree or disagree one with another. The joining or separating of signs, here meant, is what by another name we call proposition. So that truth properly belongs only to propositions: whereof there are two sorts, viz. mental and verbal; as there are two sorts of signs commonly made use of, viz. ideas and words. A right joining or separating of signs, i. e. ideas or words.

§. 3. To form a clear notion of truth, it is very necessary to consider truth of thought, and truth of words, distinctly one from another: but yet it is very difficult to treat of them asunder. Because it is unavoidable, in treating Which make mental or verbal propositions.

of mental propositions, to make use of words: and then the instances given of mental propositions cease immediately to be barely mental, and become verbal. For a mental proposition being nothing but a bare consideration of the ideas, as they are in our minds stripped of names, they lose the nature of purely mental propositions as soon as they are put into words.

Mental propositions are very hard to be treated of.

§. 4. And that which makes it yet harder to treat of mental and verbal propositions separately, is, that most men, if not all, in their thinking and reasonings, within themselves, make use of words instead of ideas: at least when the subject of their meditation contains in it complex ideas. Which is a great evidence of the imperfection and uncertainty of our ideas of that kind, and may, if attentively made use of, serve for a mark to show us, what are those things we have clear and perfect established ideas of, and what not. For if we will curiously observe the way our mind takes in thinking and reasoning, we shall find, I suppose, that when we make any propositions within our own thoughts about white or black, sweet or bitter, a triangle or a circle, we can and often do frame in our minds the ideas themselves, without reflecting on the names. But when we would consider, or make propositions about the more complex ideas, as of a man, vitriol, fortitude, glory, we usually put the name for the idea: because the ideas these names stand for, being for the most part imperfect, confused, and undetermined, we reflect on the names themselves, because they are more clear, certain, and distinct, and readier occur to our thoughts than the pure ideas: and so we make use of these words instead of the ideas themselves, even when we would meditate and reason within ourselves, and make tacit mental propositions. In substances, as has been already noticed, this is occasioned by the imperfection of our ideas: we making the name stand for the real essence, of which we have no idea at all. In modes, it is occasioned by the great number of simple ideas, that go to the making them up. For many of them being compounded, the name occurs

much easier than the complex idea itself, which requires time and attention to be recollected, and exactly represented to the mind, even in those men who have formerly been at the pains to do it; and is utterly impossible to be done by those, who, though they have ready in their memory the greatest part of the common words of that language, yet perhaps never troubled themselves in all their lives to consider what precise ideas the most of them stood for. Some confused or obscure notions have served their turns, and many who talk very much of religion and conscience, of church and faith, of power and right, of obstructions and humours, melancholy and choler, would perhaps have little left in their thoughts and meditations, if one should desire them to think only of the things themselves, and lay by those words, with which they so often confound others, and not seldom themselves also.

Being nothing but the joining or separating ideas without words.

§. 5. But to return to the consideration of truth; we must, I say, observe two sorts of propositions that we are capable of making.

First, mental, wherein the ideas in our understandings are without the use of words put together, or separated by the mind, perceiving or judging of their agreement or disagreement.

Secondly, verbal propositions, which are words, the signs of our ideas, put together or separated in affirmative or negative sentences. By which way of affirming or denying, these signs, made by sounds, are as it were put together or separated one from another. So that proposition consists in joining or separating signs, and truth consists in the putting together or separating those signs, according as the things, which they stand for, agree or disagree.

When mental propositions contain real truth, and when verbal.

§. 6. Every one's experience will satisfy him, that the mind, either by perceiving or supposing the agreement or disagreement of any of its ideas, does tacitly within itself put them into a kind of proposition affirmative or negative, which I have endeavoured

to express by the terms putting together and separating. But this action of the mind, which is so familiar to every thinking and reasoning man, is easier to be conceived by reflecting on what passes in us when we affirm or deny, than to be explained by words. When a man has in his head the idea of two lines, viz. the side and diagonal of a square, whereof the diagonal is an inch long, he may have the idea also of the division of that line into a certain number of equal parts; v. g. into five, ten, an hundred, a thousand, or any other number, and may have the idea of that inch line being divisible, or not divisible, into such equal parts, as a certain number of them will be equal to the side-line. Now whenever he perceives, believes, or supposes such a kind of divisibility to agree or disagree to his idea of that line, he, as it were, joins or separates those two ideas, viz. the idea of that line, and the idea of that kind of divisibility; and so makes a mental proposition, which is true or false, according as such a kind of divisibility, a divisibility into such aliquot parts, does really agree to that line or no. When ideas are so put together, or separated in the mind, as they or the things they stand for do agree or not, that is, as I may call it, mental truth. But truth of words is something more; and that is the affiming or denying of words one of another, as the ideas they stand for agree or disagree: and this again is twofold; either purely verbal and trifling, which I shall speak of, chap. viii. or real and instructive, which is the object of that real knowledge which we have spoken of already.

Objection against verbal truth, that thus it may all be chimerical.

§ 7 But here again will be apt to occur the same doubt about truth, that did about knowledge: and it will be objected, that if truth be nothing but the joining and separating of words in propositions, as the ideas they stand for agree or disagree in men's minds, the knowledge of truth is not so valuable a thing, as it is taken to be, nor worth the pains and time men employ in the search of it; since by this account it amounts to no more than the conformity of words to

the chimeras of men's brains. Who knows not what odd notions many men's heads are filled with, and what strange ideas all men's brains are capable of? But if we rest here, we know the truth of nothing by this rule, but of the visionary words in our own imaginations; nor have other truth, but what as much concerns harpies and centaurs, as men and horses. For those, and the like, may be ideas in our heads, and have their agreement and disagreement there, as well as the ideas of real beings, and so have as true propositions made about them. And it will be altogether as true a proposition to say all centaurs are animals, as that all men are animals; and the certainty of one as great as the other. For in both the propositions, the words are put together according to the agreement of the ideas in our minds: and the agreement of the idea of animal with that of centaur is as clear and visible to the mind, as the agreement of the idea of animal with that of man; and so these two propositions are equally true, equally certain. But of what use is all such truth to us?

Answered, real truth is about ideas agreeing to things.

§. 8. Though what has been said in the foregoing chapter, to distinguish real from imaginary knowledge, might suffice here, in answer to this doubt, to distinguish real truth from chimerical, or (if you please) barely nominal, they depending both on the same foundation; yet it may not be amiss here again to consider, that though our words signify nothing but our ideas, yet being designed by them to signify things, the truth they contain when put into propositions, will be only verbal, when they stand for ideas in the mind, that have not an agreement with the reality of things. And therefore truth, as well as knowledge, may well come under the distinction of verbal and real; that being only verbal truth, wherein terms are joined according to the agreement or disagreement of the ideas they stand for, without regarding whether our ideas are such as really have, or are capable of having an existence in nature. But then it is they contain real truth, when these signs are joined, as our ideas agree; and when

our ideas are such as we know are capable of having an existence in nature: which in substances we cannot know, but by knowing that such have existed.

Falsehood is the joining of names otherwise than their ideas agree.

§. 9. Truth is the marking down in words the agreement or disagreement of ideas as it is. Falsehood is the marking down in words the agreement or disagreement of ideas otherwise than it is. And so far as these ideas, thus marked by sounds, agree to their archetypes, so far only is the truth real. The knowledge of this truth consists in knowing what ideas the words stand for, and the perception of the agreement or disagreement of those ideas, according as it is marked by those words.

General propositions to be treated of more at large.

§. 10. But because words are looked on as the great conduits of truth and knowledge, and that in conveying and receiving of truth, and commonly in reasoning about it, we make use of words and propositions; I shall more at large inquire, wherein the certainty of real truths, contained in propositions, consists, and where it is to be had; and endeavour to show in what sort of universal propositions we are capable of being certain of their real truth or falsehood.

I shall begin with general propositions, as those which most employ our thoughts, and exercise our contemplation. General truths are most looked after by the mind, as those that most enlarge our knowledge; and by their comprehensiveness, satisfying us at once of many particulars, enlarge our view, and shorten our way to knowledge.

Moral and metaphysical truth.

§. 11. Besides truth taken in the strict sense before mentioned, there are other sorts of truth; as, 1. Moral truth; which is speaking of things according to the persuasion of our own minds, though the proposition we speak agree not to the reality of things. 2. Metaphysical truth, which is nothing but the real existence of things, conformable to the ideas to which we have annexed their names. This, though it seems to consist in the very beings of things,

yet, when considered a little nearly, will appear to include a tacit proposition, whereby the mind joins that particular thing to the idea it had before settled with a name to it. But these considerations of truth, either having been before taken notice of, or not being much to our present purpose, it may suffice here only to have mentioned them.

CHAP. VI.

Of Universal Propositions, their Truth and Certainty.

Treating of words necessary to knowledge.

§. 1. THOUGH the examining and judging of ideas by themselves, their names being quite laid aside, be the best and surest way to clear and distinct knowledge; yet through the prevailing custom of using sounds for ideas, I think it is very seldom practised. Every one may observe how common it is for names to be made use of, instead of the ideas themselves, even when men think and reason within their own breasts; especially if the ideas be very complex, and made up of a great collection of simple ones. This makes the consideration of words and propositions so necessary a part of the treatise of knowledge, that it is very hard to speak intelligibly of the one, without explaining the other.

General truths hardly to be understood, but in verbal propositions.

§. 2. All the knowledge we have, being only of particular or general truths, it is evident, that whatever may be done in the former of these, the latter, which is that which with reason is most sought after, can never be well made known, and is very seldom apprehended, but as conceived and expressed in words. It is not therefore out of our way, in the examination of our knowledge, to inquire into the truth and certainty of universal propositions.

Certainty two-fold, of truth, and of knowledge.

§. 3. But that we may not be misled in this case, by that which is the danger every where, I mean by the doubtfulness of terms, it is fit to observe, that certainty is two-fold; certainty of truth, and certainty of knowledge. Certainty of truth is, when words are so put together in propositions as exactly to express the agreement or disagreement of the ideas they stand for, as really it is. Certainty of knowledge is to perceive the agreement or disagreement of ideas, as expressed in any proposition. This we usually call knowing, or being certain of the truth of any proposition.

No proposition can be known to be true, where the essence of each species mentioned is not known.

§. 4. Now because we cannot be certain of the truth of any general proposition, unless we know the precise bounds and extent of the species its terms stand for, it is necessary we should know the essence of each species, which is that which constitutes and bounds it. This, in all simple ideas and modes, is not hard to do. For in these, the real and nominal essence being the same; or, which is all one, the abstract idea which the general term stands for, being the sole essence and boundary that is or can be supposed of the species; there can be no doubt, how far the species extends, or what things are comprehended under each term: which, it is evident, are all that have an exact conformity with the idea it stands for, and no other. But in substances wherein a real essence distinct from the nominal is supposed to constitute, determine, and bound the species, the extent of the general word is very uncertain: because not knowing this real essence, we cannot know what is, or what is not of that species; and consequently what may, or may not with certainty be affirmed of it. And thus speaking of a man, or gold, or any other species of natural substances, as supposed constituted by a precise and real essence, which nature regularly imparts to every individual of that kind, whereby it is made to be of that species, we cannot be certain of the truth of any affirmation or negation made of it. For man, or gold, taken in this sense, and used

for species of things constituted by real essences, different from the complex idea in the mind of the speaker; stand for we know not what: and the extent of these species, with such boundaries, are so unknown and undetermined, that it is impossible with any certainty to affirm, that all men are rational, or that all gold is yellow. But where the nominal essence is kept to, as the boundary of each species, and men extend the application of any general term no farther than to the particular things, in which the complex idea it stands for is to be found, there they are in no danger to mistake the bounds of each species, nor can be in doubt, on this account, whether any proposition be true or no. I have chosen to explain this uncertainty of propositions in this scholastic way, and have made use of the terms of essence and species, on purpose to show the absurdity and inconvenience there is to think of them, as of any other sort of realities, than barely abstract ideas with names to them. To suppose that the species of things are any thing but the sorting of them under general names, according as they agree to several abstract ideas, of which we make those names the signs, is to confound truth, and introduce uncertainty into all general propositions that can be made about them. Though therefore these things might, to people not possessed with scholastic learning, be treated of in a better and clearer way: yet those wrong notions of essences or species having got root in most people's minds, who have received any tincture from the learning which has prevailed in this part of the world, are to be discovered and removed, to make way for that use of words which should convey certainty with it.

§. 5. The names of substances then, whenever made to stand for species, which are supposed to be constituted by real essences, which we know not, are not capable to convey certainty to the understanding: of the truth of general propositions made up of such terms, we cannot be sure. The reason whereof is plain: for how can we be sure that this or that quality is in gold, when

This more particularly concerns substances.

we know not what is or is not gold? Since in this way of speaking nothing is gold, but what partakes of an essence, which we not knowing, cannot know where it is or is not, and so cannot be sure that any parcel of matter in the world is or is not in this sense gold; being incurably ignorant, whether it has or has not that which makes any thing to be called gold, i. e. that real essence of gold whereof we have no idea at all: this being as impossible for us to know, as it is for a blind man to tell in what flower the colour of a pansie is, or is not to be found, whilst he has no idea of the colour of a pansie at all. Or if we could (which is impossible) certainly know where a real essence, which we know not, is; v. g. in what parcels of matter the real essence of gold is; yet could we not be sure, that this or that quality could with truth be affirmed of gold: since it is impossible for us to know, that this or that quality or idea has a necessary connexion with a real essence, of which we have no idea at all, whatever species that supposed real essence may be imagined to constitute.

The truth of few universal propositions concerning substances is to be known.

§. 6. On the other side, the names of substances, when made use of as they should be, for the ideas men have in their minds, though they carry a clear and determinate signification with them, will not yet serve us to make many universal propositions, of whose truth we can be certain. Not because in this use of them we are uncertain what things are signified by them, but because the complex ideas they stand for are such combinations of simple ones, as carry not with them any discoverable connexion or repugnancy, but with a very few other ideas.

Because co-existence of ideas in few cases is to be known.

§. 7. The complex ideas, that our names of the species of substances properly stand for, are collections of such qualities as have been observed to co-exist in an unknown substratum, which we call substance: but what other qualities necessarily co-exist with such combinations, we cannot certainly know, unless we can discover their natural dependence; which in their primary

qualities, we can go but a very little way in; and in all their secondary qualities, we can discover no connexion at all, for the reasons mentioned, chap. iii. viz. 1. Because we know not the real constitutions of substances, on which each secondary quality particularly depends. 2. Did we know that, it would serve us only for experimental (not universal) knowledge; and reach with certainty no farther, than that bare instance; because our understandings can discover no conceivable connexion between any secondary quality and any modification whatsoever of any of the primary ones. And therefore there are very few general propositions to be made concerning substances, which can carry with them undoubted certainty.

§. 8. All gold is fixed, is a proposition whose truth we cannot be certain of, how universally soever it be believed. For if, according to the useless imagination of the schools, any one supposes the term gold to stand for a species of things set out by nature, by a real essence belonging to it, it is evident he knows not what particular substances are of that species: and so cannot, with certainty, affirm any thing universally of gold. But if he makes gold stand for a species determined by its nominal essence, let the nominal essence, for example, be the complex idea of a body of a certain yellow colour malleable, fusible, and heavier than any other known; in this proper use of the word gold, there is no difficulty to know what is or is not gold. But yet no other quality can with certainty be universally affirmed or denied of gold, but what hath a discoverable connexion or inconsistency with that nominal essence. Fixedness, for example, having no necessary connexion, that we can discover, with the colour, weight, or any other simple idea of our complex one, or with the whole combination together; it is impossible that we should certainly know the truth of this proposition, that all gold is fixed.

Instance in gold.

§. 9. As there is no discoverable connexion between fixedness and the colour, weight, and other simple ideas of that nominal essence of gold; so if we make our complex idea of gold a body yellow, fusible, ductile, weighty,

and fixed, we shall be at the same uncertainty concerning solubility in aq. regia, and for the same reason: since we can never, from consideration of the ideas themselves, with certainty affirm or deny of a body, whose complex idea is made up of yellow, very weighty, ductile, fusible, and fixed, that it is soluble in aqua regia; and so on, of the rest of its qualities. I would gladly meet with one general affirmation concerning any quality of gold, that any one can certainly know is true. It will, no doubt, be presently objected, is not this an universal proposition, "all gold is malleable?" To which I answer, it is a very certain proposition, if malleableness be a part of the complex idea the word gold stands for. But then here is nothing affirmed of gold, but that that sound stands for an idea in which malleableness is contained: and such a sort of truth and certainty as this, it is to say a centaur is four-footed. But if malleableness makes not a part of the specific essence the name of gold stands for, it is plain, "all gold is malleable" is not a certain proposition. Because let the complex idea of gold be made up of which soever of its other qualities you please, malleableness will not appear to depend on that complex idea, nor follow from any simple one contained in it: the connexion that malleableness has (if it has any) with those other qualities, being only by the intervention of the real constitution of its insensible parts; which, since we know not, it is impossible we should perceive that connexion, unless we could discover that which ties them together.

As far as any such coexistence can be known, so far universal propositions may be certain. But this will go but a little way, because

§. 10. The more, indeed, of these coexisting qualities we unite into one complex idea, under one name, the more precise and determinate we make the signification of that word; but never yet make it thereby more capable of universal certainty, in respect of other qualities not contained in our complex idea; since we perceive not their connexion or dependence on one another, being ignorant both of that real constitution in which they are all founded, and also how they flow from it. For the chief part of our knowledge con-

cerning substances is not, as in other things, barely of the relation of two ideas that may exist separately; but is of the necessary connexion and co-existence of several distinct ideas in the same subject, or of their repugnancy so to co-exist. Could we begin at the other end, and discover what it was, wherein that colour consisted, what made a body lighter or heavier, what texture of parts made it malleable, fusible, and fixed, and fit to be dissolved in this sort of liquor, and not in another; if (I say) we had such an idea as this of bodies, and could perceive wherein all sensible qualities originally consist, and how they are produced; we might frame such ideas of them, as would furnish us with matter of more general knowledge, and enable us to make universal propositions, that should carry general truth and certainty with them. But whilst our complex ideas of the sorts of substances are so remote from that internal real constitution, on which their sensible qualities depend, and are made up of nothing but an imperfect collection of those apparent qualities our senses can discover; there can be few general propositions concerning substances, of whose real truth we can be certainly assured: since there are but few simple ideas, of whose connexion and necessary co-existence we can have certain and undoubted knowledge. I imagine, amongst all the secondary qualities of substances, and the powers relating to them, there cannot any two be named, whose necessary co-existence, or repugnance to co-exist, can certainly be known, unless in those of the same sense, which necessarily exclude one another, as I have elsewhere showed. No one, I think, by the colour that is in any body, can certainly know what smell, taste, sound, or tangible qualities it has, nor what alterations it is capable to make or receive, on or from other bodies. The same may be said of the sound or taste, &c. Our specific names of substances standing for any collections of such ideas, it is not to be wondered, that we can with them make very few general propositions of undoubted real certainty. But yet so far as any complex idea, of any sort of substances, contains in it any simple idea, whose necessary co-existence with any other may be discovered,

so far universal propositions may with certainty be made concerning it: v. g. could any one discover a necessary connexion between malleableness, and the colour or weight of gold, or any other part of the complex idea signified by that name, he might make a certain universal proposition concerning gold in this respect; and the real truth of this proposition, "that all gold is malleable," would be as certain as of this, "the three angles of all "right-lined triangles are all equal to two right ones."

The qualities which make our complex ideas of substances, depend mostly on external, remote, and unperceived causes.

§. 11. Had we such ideas of substances, as to know what real constitutions produce those sensible qualities we find in them, and how those qualities flowed from thence, we could, by the specific ideas of their real essences in our own minds, more certainly find out their properties, and discover what qualities they had or had not, than we can now by our senses: and to know the properties of gold, it would be no more necessary that gold should exist, and that we should make experiments upon it, than it is necessary for the knowing the properties of a triangle, that a triangle should exist in any matter; the idea in our minds would serve for the one as well as the other. But we are so far from being admitted into the secrets of nature, that we scarce so much as ever approach the first entrance towards them. For we are wont to consider the substances we meet with, each of them as an entire thing by itself, having all its qualities in itself, and independent of other things; overlooking, for the most part, the operations of those invisible fluids they are encompassed with, and upon whose motions and operations depend the greatest part of those qualities which are taken notice of in them, and are made by us the inherent marks of distinction whereby we know and denominate them. Put a piece of gold any where by itself, separate from the reach and influence of all other bodies, it will immediately lose all its colour and weight, and perhaps malleableness too; which, for aught I know, would be changed into a perfect friability. Water, in which to us fluidity is an essential quality left to itself, would cease to be fluid. But if inanimate

bodies owe so much of their present state to other bodies without them, that they would not be what they appear to us, were those bodies that environ them removed; it is yet more so in vegetables, which are nourished, grow, and produce leaves, flowers, and seeds, in a constant succession. And if we look a little nearer into the state of animals, we shall find that their dependence, as to life, motion, and the most considerable qualities to be observed in them, is so wholly on extrinsical causes and qualities of other bodies that make no part of them, that they cannot subsist a moment without them: though yet those bodies on which they depend, are little taken notice of, and make no part of the complex ideas we frame of those animals. Take the air but for a minute from the greatest part of living creatures, and they presently lose sense, life, and motion. This the necessity of breathing has forced into our knowledge. But how many other extrinsical, and possibly very remote bodies, do the springs of these admirable machines depend on, which are not vulgarly observed, or so much as thought on; and how many are there, which the severest inquiry can never discover? The inhabitants of this spot of the universe, though removed so many millions of miles from the sun, yet depend so much on the duly tempered motion of particles coming from, or agitated by it, that were this earth removed but a small part of the distance out of its present situation, and placed a little farther or nearer that source of heat, it is more than probable that the greatest part of the animals in it would immediately perish: since we find them so often destroyed by an excess or defect of the sun's warmth, which an accidental position, in some parts of this our little globe, exposes them to. The qualities observed in a loadstone must needs have their source far beyond the confines of that body; and the ravage made often on several sorts of animals by invisible causes, the certain death (as we are told) of some of them, by barely passing the line, or, as it is certain of other, by being removed into a neighbouring country; evidently show that the concurrence and operations of several bodies, with which they are seldom thought to have any thing

to do, is absolutely necessary to make them be what they appear to us, and to preserve those qualities by which we know and distinguish them. We are then quite out of the way, when we think that things contain within themselves the qualities that appear to us in them; and we in vain search for that constitution within the body of a fly, or an elephant, upon which depend those qualities and powers we observe in them. For which perhaps, to understand them aright, we ought to look not only beyond this our earth and atmosphere, but even beyond the sun, or remotest star our eyes have yet discovered. For how much the being and operation of particular substances in this our globe depends on causes utterly beyond our view, is impossible for us to determine. We see and perceive some of the motions and grosser operations of things here about us; but whence the streams come that keep all these curious machines in motion and repair, how conveyed and modified, is beyond our notice and apprehension: and the great parts and wheels, as I may so say, of this stupendous structure of the universe, may, for aught we know, have such a connexion and dependence in their influences and operations one upon another, that perhaps things in this our mansion would put on quite another face, and cease to be what they are, if some one of the stars or great bodies, incomprehensibly remote from us, should cease to be or move as it does. This is certain, things however absolute and entire they seem in themselves, are but retainers to other parts of nature, for that which they are most taken notice of by us. Their observable qualities, actions, and powers, are owing to something without them; and there is not so complete and perfect a part that we know of nature, which does not owe the being it has, and the excellencies of it, to its neighbours; and we must not confine our thoughts within the surface of any body, but look a great deal farther, to comprehend perfectly those qualities that are in it.

§. 12. If this be so, it is not to be wondered, that we have very imperfect ideas of substances; and that the real essences, on which depend their properties and

operations, are unknown to us. We cannot discover so much as that size, figure, and texture of their minute and active parts, which is really in them; much less the different motions and impulses made in and upon them by bodies from without, upon which depends, and by which is formed, the greatest and most remarkable part of those qualities we observe in them, and of which our complex ideas of them are made up. This consideration alone is enough to put an end to all our hopes of ever having the ideas of their real essences; which whilst we want, the nominal essences we make use of instead of them will be able to furnish us but very sparingly with any general knowledge, or universal propositions capable of real certainty.

Judgment may reach farther, but that is not knowledge.

§. 13. We are not therefore to wonder, if certainty be to be found in very few general propositions made concerning substances: our knowledge of their qualities and properties goes very seldom farther than our senses reach and inform us. Possibly inquisitive and observing men may, by strength of judgment, penetrate farther, and on probabilities taken from wary observation, and hints well laid together, often guess right at what experience has not yet discovered to them. But this is but guessing still; it amounts only to opinion, and has not that certainty which is requisite to knowledge. For all general knowledge lies only in our own thoughts, and consists barely in the contemplation of our own abstract ideas. Wherever we perceive any agreement or disagreement amongst them, there we have general knowledge; and by putting the names of those ideas together accordingly in propositions, can with certainty pronounce general truths. But because the abstract ideas of substances, for which their specific names stand, whenever they have any distinct and determinate signification, have a discoverable connexion or inconsistency with but a very few other ideas: the certainty of universal propositions concerning substances is very narrow and scanty in that part, which is our principal inquiry concerning them: and there are scarce any of the names of substances, let the idea it is applied

to be what it will, of which we can generally and with certainty pronounce, that it has or has not this or that other quality belonging to it, and constantly co-existing or inconsistent with that idea, wherever it is to be found.

What is requisite for our knowledge of substances.

§. 14. Before we can have any tolerable knowledge of this kind, we must first know what changes the primary qualities of one body do regularly produce in the primary qualities of another, and how. Secondly, we must know what primary qualities of any body produce certain sensations or ideas in us. This is in truth no less than to know all the effects of matter, under its divers modifications of bulk, figure, cohesion of parts, motion and rest. Which, I think every body will allow, is utterly impossible to be known by us without revelation. Now if it were revealed to us, what sort of figure, bulk, and motion of corpuscles, would produce in us the sensation of a yellow colour, and what sort of figure, bulk, and texture of parts, in the superficies of any body, were fit to give such corpuscles their due motion to produce that colour; would that be enough to make universal propositions with certainty, concerning the several sorts of them, unless we had faculties acute enough to perceive the precise bulk, figure, texture, and motion of bodies in those minute parts, by which they operate on our senses, so that we might by those frame our abstract ideas of them. I have mentioned here only corporeal substances, whose operations seem to lie more level to our understandings: for as to the operations of spirits, both their thinking and moving of bodies, we at first sight find ourselves at a loss; though perhaps, when we have applied our thoughts a little nearer to the consideration of bodies, and their operations, and examined how far our notions, even in these, reach, with any clearness, beyond sensible matter of fact, we shall be bound to confess, that even in these too our discoveries amount to very little beyond perfect ignorance and incapacity.

Whilst our ideas of substances con-

§. 15. This is evident, the abstract complex ideas of substances, for which their general names stand, not comprehending their

real constitutions, can afford us very little universal certainty. Because our ideas of them are not made up of that, on which those qualities we observe in them, and would inform ourselves about, do depend, or with which they have any certain connexion: v. g. let the ideas to which we give the name man, be, as it commonly is, a body of the ordinary shape, with sense, voluntary motion, and reason joined to it. This being the abstract idea, and consequently the essence of our species man, we can make but very few general certain propositions concerning man, standing for such an idea. Because not knowing the real constitution on which sensation, power of motion, and reasoning, with that peculiar shape, depend, and whereby they are united together in the same subject, there are very few other qualities, with which we can perceive them to have a necessary connexion: and therefore we cannot with certainty affirm, that all men sleep by intervals; that no man can be nourished by wood or stones; that all men will be poisoned by hemlock: because these ideas have no connexion nor repugnancy with this our nominal essence of man, with this abstract idea that name stands for. We must, in these and the like, appeal to trial in particular subjects, which can reach but a little way. We must content ourselves with probability in the rest; but can have no general certainty, whilst our specific idea of man contains not that real constitution, which is the root, wherein all his inseparable qualities are united, and from whence they flow. Whilst our idea, the word man stands for, is only an imperfect collection of some sensible qualities and powers in him, there is no discernible connexion or repugnance between our specific idea, and the operation of either the parts of hemlock or stones, upon his constitution. There are animals that safely eat hemlock, and others that are nourished by wood and stones: but as long as we want ideas of those real constitutions of different sorts of animals, wherein these and the like qualities and powers depend, we must not hope to reach certainty in universal pro-

tain not their real constitutions, we can make but few general certain propositions concerning them.

positions concerning them. Those few ideas only, which have a discernible connexion with our nominal essence, or any part of it, can afford us such propositions. But these are so few, and of so little moment, that we may justly look on our certain general knowledge of substances, as almost none at all.

Wherein lies the general certainty of propositions.

§. 16. To conclude, general propositions, of what kind soever, are then only capable of certainty, when the terms used in them stand for such ideas, whose agreement or disagreement, as there expressed, is capable to be discovered by us. And we are then certain of their truth or falsehood, when we perceive the ideas the terms stand for to agree or not agree, according as they are affirmed or denied one of another. Whence we may take notice, that general certainty is never to be found but in our ideas. Whenever we go to seek it elsewhere in experiment, or observations without us, our knowledge goes not beyond particulars. It is the contemplation of our own abstract ideas that alone is able to afford us general knowledge.

CHAP. VII.

Of Maxims.

They are self-evident.

§. 1. THERE are a sort of propositions, which under the name of maxims and axioms have passed for principles of science; and because they are self-evident, have been supposed innate, although nobody (that I know) ever went about to show the reason and foundation of their clearness or cogency. It may however be worth while to inquire into the reason of their evidence, and see whether it be peculiar to them alone, and also examine how far they influence and govern our other knowledge.

Wherein that self-evidence consists.

§. 2. Knowledge, as has been shown, consists in the perception of the agreement or disagreement of ideas: now where that

agreement or disagreement is perceived immediately by itself, without the intervention or help of any other, there our knowledge is self-evident. This will appear to be so to any one, who will but consider any of those propositions, which, without any proof, he assents to at first sight: for in all of them he will find, that the reason of his assent is from that agreement or disagreement, which the mind, by an immediate comparing them, finds in those ideas answering the affirmation or negation in the proposition.

Self-evidence not peculiar to received axioms.

§. 3. This being so, in the next place let us consider, whether this self-evidence be peculiar only to those propositions, which commonly pass under the name of maxims, and have the dignity of axioms allowed them. And here it is plain, that several other truths, not allowed to be axioms, partake equally with them in this self-evidence. This we shall see, if we go over these several sorts of agreement or disagreement of ideas, which I have above-mentioned, viz. identity, relation, co-existence, and real existence; which will discover to us, that not only those few propositions, which have had the credit of maxims, are self-evident, but a great many, even almost an infinite number of other propositions are such.

1. As to identity and diversity, all propositions are equally self-evident.

§. 4. For first the immediate perception of the agreement or disagreement of identity, being founded in the mind's having distinct ideas, this affords us as many self-evident propositions, as we have distinct ideas. Every one that has any knowledge at all, has as the foundation of it, various and distinct ideas: and it is the first act of the mind (without which it can never be capable of any knowledge) to know every one of its ideas by itself, and distinguish it from others. Every one finds in himself, that he knows the ideas he has; that he knows also, when any one is in his understanding, and what it is; and that when more than one are there, he knows them distinctly and unconfusedly one from another. Which always being so (it being impossible but that he should perceive what he perceives) he can never be in doubt when any idea

is in his mind, that it is there, and is that idea it is; and that two distinct ideas, when they are in his mind, are there, and are not one and the same idea. So that all such affirmations and negations are made without any possibility of doubt, uncertainty, or hesitation, and must necessarily be assented to as soon as understood; that is, as soon as we have in our minds determined ideas, which the terms in the proposition stand for. And therefore whenever the mind with attention considers any proposition, so as to perceive the two ideas signified by the terms, and affirmed or denied one of another, to be the same or different; it is presently and infallibly certain of the truth of such a proposition, and this equally, whether these propositions be in terms standing for more general ideas, or such as are less so, v. g. whether the general idea of being be affirmed of itself, as in this proposition, whatsoever is, is; or a more particular idea be affirmed of itself, as a man is a man; or, whatsoever is white, is white; or whether the idea of being in general be denied of not being, which is the only (if I may so call it) idea different from it, as in this other proposition, it is impossible for the same thing to be, and not to be; or any idea of any particular being be denied of another different from it, as a man is not a horse; red is not blue. The difference of the ideas, as soon as the terms are understood, makes the truth of the proposition presently visible, and that with an equal certainty and easiness in the less as well as the more general propositions, and all for the same reason, viz. because the mind perceives, in any ideas that it has, the same idea to be the same with itself; and two different ideas to be different, and not the same. And this it is equally certain of, whether these ideas be more or less general, abstract, and comprehensive. It is not therefore alone to these two general propositions, whatsoever is, is; and it is impossible for the same thing to be, and not to be; that this sort of self-evidence belongs by any peculiar right. The perception of being, or not being, belongs no more to these vague ideas, signified by the terms whatsoever and thing, than it does to any other ideas. These two general maxims, amounting to no more in

short but this, that the same is the same, and same is not different, are truths known in more particular instances, as well as in those general maxims, and known also in particular instances, before these general maxims are ever thought on, and draw all their force from the discernment of the mind employed about particular ideas. There is nothing more visible than that the mind, without the help of any proof, or reflection on either of these general propositions, perceives so clearly, and knows so certainly, that the idea of white is the idea of white, and not the idea of blue; and that the idea of white, when it is in the mind, is there, and is not absent; that the consideration of these axioms can add nothing to the evidence or certainty of its knowledge. Just so it is (as every one may experiment in himself) in all the ideas a man has in his mind; he knows each to be itself, and not to be another; and to be in his mind, and not away when it is there, with a certainty that cannot be greater; and therefore the truth of no general proposition can be known with a greater certainty, nor add any thing to this. So that in respect of identity, our intuitive knowledge reaches as far as our ideas. And we are capable of making as many self-evident propositions, as we have names for distinct ideas. And I appeal to every one's own mind, whether this proposition, A circle is a circle, be not as self-evident a proposition, as that consisting of more general terms, whatsoever is, is; and again whether this proposition, blue is not red, be not a proposition that the mind can no more doubt of, as soon as it understands the words, than it does of that axiom, It is impossible for the same thing to be, and not to be; and so of all the like.

2. In coexistence we have few self-evident propositions.

§. 5. Secondly, as to co-existence, or such necessary connexion between two ideas, that, in the subject where one of them is supposed, there the other must necessarily be also: of such agreement or disagreement as this, the mind has an immediate perception but in very few of them. And therefore in this sort we have but very little intuitive knowledge; nor are there to be

found very many propositions that are self-evident, though some there are; v. g. the idea of filling a place equal to the contents of its superficies, being annexed to our idea of body, I think it is a self-evident proposition, that two bodies cannot be in the same place.

3. In other relations we may have.

§. 6. Thirdly, as to the relations of modes, mathematicians have framed many axioms concerning that one relation of equality. As, equals taken from equals, the remainder will be equal; which, with the rest of that kind, however they are received for maxims by the mathematicians, and are unquestionable truths; yet, I think, that any one who considers them will not find, that they have a clearer self-evidence than these, that one and one are equal to two; that if you take from the five fingers of one hand two, and from the five fingers of the other hand two, the remaining numbers will be equal. These and a thousand other such propositions may be found in numbers, which, at the very first hearing, force the assent, and carry with them an equal, if not greater clearness, than those mathematical axioms.

4. Concerning real existence we have none.

§. 7. Fourthly, as to real existence, since that has no connexion with any other of our ideas, but that of ourselves, and of a first being, we have in that, concerning the real existence of all other beings, not so much as demonstrative, much less a self-evident knowledge; and therefore concerning those there are no maxims.

These axioms do not much influence our other knowledge.

§. 8. In the next place let us consider, what influence these received maxims have upon the other parts of our knowledge. The rules established in the schools, that all reasonings are "ex præcognitis & præconcessis," seem to lay the foundation of all other knowledge in these maxims, and to suppose them to be præcognita; whereby, I think, are meant these two things: first, that these axioms are those truths that are first known to the mind. And, secondly, that upon them the other parts of our knowledge depend.

§. 9. First, that they are not the truths first known to the mind is evident to experience, as we have shown in another place, book i. chap. ii. Who perceives not that a child certainly knows that a stranger is not its mother; that its sucking-bottle is not the rod, long before he knows that it is impossible for the same thing to be and not to be? And how many truths are there about numbers, which it is obvious to observe, that the mind is perfectly acquainted with, and fully convinced of, before it ever thought on these general maxims, to which mathematicians, in their arguings, do sometimes refer them? Whereof the reason is very plain: for that which makes the mind assent to such propositions, being nothing else but the perception it has of the agreement or disagreement of its ideas, according as it finds them affirmed or denied one of another, in words it understands; and every idea being known to be what it is, and every two distinct ideas being known not to be the same; it must necessarily follow, that such self-evident truths must be first known which consist of ideas that are first in the mind: and the ideas first in the mind, it is evident, are those of particular things, from whence, by slow degrees, the understanding proceeds to some few general ones; which being taken from the ordinary and familiar objects of sense, are settled in the mind, with general names to them. Thus particular ideas are first received and distinguished, and so knowledge got about them; and next to them, the less general or specific, which are next to particular: for abstract ideas are not so obvious or easy to children, or the yet unexercised mind, as particular ones. If they seem so to grown men, it is only because by constant and familiar use they are made so. For when we nicely reflect upon them, we shall find, that general ideas are fictions and contrivances of the mind, that carry difficulty with them, and do not so easily offer themselves, as we are apt to imagine. For example, does it not require some pains and skill to form the general idea of a triangle (which is yet none of the most abstract, comprehensive,

Because they are not the truths we first knew.

and difficult), for it must be neither oblique, nor rectangle, neither equilateral, equicrural, nor scalenon; but all and none of these at once. In effect, it is something imperfect, that cannot exist; an idea wherein some parts of several different and inconsistent ideas are put together. It is true, the mind, in this imperfect state, has need of such ideas, and makes all the haste to them it can, for the conveniency of communication and enlargement of knowledge; to both which it is naturally very much inclined. But yet one has reason to suspect such ideas are marks of our imperfection; at least this is enough to show, that the most abstract and general ideas are not those that the mind is first and most easily acquainted with, not such as its earliest knowledge is conversant about.

Because on them the other parts of our knowledge do not depend.

§. 10. Secondly, from what has been said it plainly follows, that these magnified maxims are not the principles and foundations of all our other knowledge. For if there be a great many other truths, which have as much self-evidence as they, and a great many that we know before them, it is impossible they should be the principles, from which we deduce all other truths. Is it impossible to know that one and two are equal to three, but by virtue of this, or some such axiom, viz. the whole is equal to all its parts taken together? Many a one knows that one and two are equal to three, without having heard, or thought on that, or any other axiom, by which it might be proved: and knows it as certainly, as any other man knows, that the whole is equal to all its parts, or any other maxim, and all from the same reason of self-evidence; the equality of those ideas being as visible and certain to him without that, or any other axiom, as with it, it needing no proof to make it perceived. Nor after the knowledge that the whole is equal to all its parts, does he know that one and two are equal to three, better or more certainly than he did before. For if there be any odds in those ideas, the whole and parts are more obscure, or at least more difficult to be settled in the mind, than those of one, two, and three. And indeed, I think, I may ask

these men, who will needs have all knowledge, besides those general principles themselves, to depend on general, innate, and self-evident principles: what principle is requisite to prove, that one and one are two, that two and two are four, that three times two are six? Which being known without any proof, do evince that either all knowledge does not depend on certain præcognita or general maxims, called principles, or else that these are principles; and if these are to be counted principles, a great part of numeration will be so. To which if we add all the self-evident propositions, which may be made about all our distinct ideas, principles will be almost infinite, at least innumerable, which men arrive to the knowledge of, at different ages; and a great many of these innate principles they never come to know all their lives. But whether they come in view of the mind, earlier or later, this is true of them, that they are all known by their native evidence, are wholly independent, receive no light, nor are capable of any proof one from another; much less the more particular, from the more general; or the more simple, from the more compounded: the more simple, and less abstract, being the most familiar, and the easier and earlier apprehended. But which ever be the clearest ideas, the evidence and certainty of all such propositions is in this, that a man sees the same idea to be the same idea, and infallibly perceives two different ideas to be different ideas. For when a man has in his understanding the ideas of one and of two, the idea of yellow, and the idea of blue, he cannot but certainly know, that the idea of one is the idea of one, and not the idea of two; and that the idea of yellow is the idea of yellow, and not the idea of blue. For a man cannot confound the ideas in his mind, which he has distinct: that would be to have them confused and distinct at the same time, which is a contradiction: and to have none distinct is to have no use of our faculties, to have no knowledge at all. And therefore what idea soever is affirmed of itself, or whatsoever two entire distinct ideas are denied one of another, the mind cannot but assent to such a proposition as infallibly true, as soon as it understands the terms, without hesitation or

need of proof, or regarding those made in more general terms, and called maxims.

What use these general maxims have.

§. 11. What shall we then say? Are these general maxims of no use? By no means; though perhaps their use is not that, which it is commonly taken to be. But since doubting in the least of what hath been by some men ascribed to these maxims may be apt to be cried out against, as overturning the foundations of all the sciences; it may be worth while to consider them, with respect to other parts of our knowledge, and examine more particularly to what purposes they serve, and to what not.

1. It is evident from what has been already said, that they are of no use to prove or confirm less general self-evident propositions.

2. It is as plain that they are not, nor have been the foundations whereon any science hath been built. There is, I know, a great deal of talk, propagated from scholastic men, of sciences and the maxims on which they are built: but it has been my ill luck never to meet with any such sciences; much less any one built upon these two maxims, what is, is; and it is impossible for the same thing to be, and not to be. And I would be glad to be shown where any such science, erected upon these, or any other general axioms, is to be found: and should be obliged to any one who would lay before me the frame and system of any science so built on these or any such-like maxims, that could not be shown to stand as firm without any consideration of them. I ask, whether these general maxims have not the same use in the study of divinity, and in theological questions, that they have in other sciences? They serve here too to silence wranglers, and put an end to dispute. But I think that nobody will therefore say, that the christian religion is built upon these maxims, or that the knowledge we have of it is derived from these principles. It is from revelation we have received it, and without revelation these maxims had never been able to help us to it. When [illegible] an idea, by whose intervention we discover [illegible] two, and [illegible] of two others, this is a revelation from

God to us, by the voice of reason. For we then come to know a truth that we did not know before. When God declares any truth to us, this is a revelation to us by the voice of his spirit, and we are advanced in our knowledge. But in neither of these do we receive our light or knowledge from maxims. But in the one the things themselves afford it, and we see the truth in them by perceiving their agreement or disagreement. In the other, God himself affords it immediately to us, and we see the truth of what he says in his unerring veracity.

3. They are not of use to help men forward in the advancement of sciences, or new discoveries of yet unknown truths. Mr. Newton, in his never enough to be admired book, has demonstrated several propositions, which are so many new truths, before unknown to the world, and are farther advances in mathematical knowledge: but, for the discovery of these, it was not the general maxims, what is, is; or, the whole is bigger than a part; or the like; that helped him. These were not the clues that led him into the discovery of the truth and certainty of those propositions. Nor was it by them that he got the knowledge of those demonstrations; but by finding out intermediate ideas, that showed the agreement or disagreement of the ideas, as expressed in the propositions he demonstrated. This is the greatest exercise and improvement of human understanding in the enlarging of knowledge, and advancing the sciences; wherein they are far enough from receiving any help from the contemplation of these, or the like magnified maxims. Would those who have this traditional admiration of these propositions, that they think no step can be made in knowledge without the support of an axiom, no stone laid in the building of the sciences without a general maxim, but distinguish between the method of acquiring knowledge, and of communicating; between the method of raising any science and that of teaching it to others as far as it is advanced; they would see that those general maxims were not the foundations on which the first discoverers raised their admirable structures, nor the keys that unlocked and opened those secrets of knowledge. Though afterwards, when schools were

erected, and sciences had their professors to teach what others had found out, they often made use of maxims, i. e. laid down certain propositions which were self-evident, or to be received for true; which being settled in the minds of their scholars, as unquestionable verities, they on occasion made use of, to convince them of truths in particular instances that were not so familiar to their minds as those general axioms which had before been inculcated to them, and carefully settled in their minds. Though these particular instances, when well reflected on, are no less self-evident to the understanding than the general maxims brought to confirm them: and it was in those particular instances that the first discoverer found the truth, without the help of the general maxims: and so may any one else do, who with attention considers them.

To come therefore to the use that is made of maxims.

1. They are of use, as has been observed, in the ordinary methods of teaching sciences as far as they are advanced; but of little or none in advancing them farther.

2. They are of use in disputes, for the silencing of obstinate wranglers, and bringing those contests to some conclusion. Whether a need of them to that end came not in, in the manner following, I crave leave to inquire. The schools having made disputation the touchstone of men's abilities, and the criterion of knowledge, adjudged victory to him that kept the field: and he that had the last word, was concluded to have the better of the argument, if not of the cause. But because by this means there was like to be no decision between skilful combatants, whilst one never failed of a medius terminus to prove any proposition; and the other could as constantly, without, or with a distinction, deny the major or minor; to prevent, as much as could be, running out of disputes into an endless train of syllogisms, certain general propositions, most of them indeed self-evident, were introduced into the schools; which being such as all men allowed and agreed in, were looked on as general measures of truth, and served instead of principles (where the disputants had not lain down any other between them) beyond which there was no going, and which

must not be receded from by either side. And thus these maxims getting the name of principles, beyond which men in dispute could not retreat, were by mistake taken to be originals and sources, from whence all knowledge began, and the foundations whereon the sciences were built. Because when in their disputes they came to any of these, they stopped there, and went no farther, the matter was determined. But how much this is a mistake, hath been already shown.

This method of the schools, which have been thought the fountains of knowledge, introduced, as I suppose, the like use of these maxims, into a great part of conversation out of the schools, to stop the mouths of cavillers, whom any one is excused from arguing any longer with, when they deny these general self-evident principles received by all reasonable men, who have once thought of them: but yet their use herein is but to put an end to wrangling. They in truth, when urged in such cases, teach nothing: that is already done by the intermediate ideas made use of in the debate, whose connexion may be seen without the help of those maxims, and so the truth known before the maxim is produced, and the argument brought to a first principle. Men would give off a wrong argument before it came to that, if in their disputes they proposed to themselves the finding and embracing of truth, and not a contest for victory. And thus maxims have their use to put a stop to their perverseness, whose ingenuity should have yielded sooner. But the method of these schools having allowed and encouraged men to oppose and resist evident truth till they are baffled, i. e. till they are reduced to contradict themselves or some established principle, it is no wonder that they should not in civil conversation be ashamed of that, which in the schools is counted a virtue and a glory; obstinately to maintain that side of the question they have chosen, whether true or false, to the last extremity, even after conviction. A strange way to attain truth and knowledge, and that which I think the rational part of mankind, not corrupted by education, could scarce believe should ever be admitted amongst the lovers of truth, and students of religion or

nature; or introduced into the seminaries of those who are to propagate the truths of religion or philosophy amongst the ignorant and unconvinced. How much such a way of learning is like to turn young men's minds from the sincere search and love of truth; nay, and to make them doubt whether there is any such thing, or at least worth the adhering to, I shall not now inquire. This I think, that bating those places, which brought the peripatetic philosophy into their schools, where it continued many ages, without teaching the world any thing but the art of wrangling; these maxims were no where thought the foundations on which the sciences were built, nor the great helps to the advancement of knowledge.

As to these general maxims therefore, they are, as I have said, of great use in disputes, to stop the mouths of wranglers; but not of much use to the discovery of unknown truths, or to help the mind forwards in its search after knowledge. For who ever began to build his knowledge on this general proposition, what is, is; or, it is impossible for the same thing to be, and not to be: and from either of these, as from a principle of science, deduced a system of useful knowledge? Wrong opinions often involving contradictions, one of these maxims, as a touchstone, may serve well to show whither they lead. But yet, however fit to lay open the absurdity or mistake of a man's reasoning or opinion, they are of very little use for enlightening the understanding; and it will not be found, that the mind receives much help from them in its progress in knowledge; which would be neither less, nor less certain, were these two general propositions never thought on. It is true, as I have said, they sometimes serve in argumentation to stop a wrangler's mouth, by showing the absurdity of what he saith, and by exposing him to the shame of contradicting what all the world knows, and he himself cannot but own to be true. But it is one thing to show a man that he is in an error; and another to put him in possession of truth: and I would fain know what truths these two propositions are able to teach, and by their influence make us know, which we

did not know before, or could not know without them. Let us reason from them as well as we can, they are only about identical predications, and influence, if any at all, none but such. Each particular proposition concerning identity or diversity is as clearly and certainly known in itself, if attended to, as either of these general ones: only these general ones, as serving in all cases, are therefore more inculcated and insisted on. As to other less general maxims, many of them are no more than bare verbal propositions, and teach us nothing but the respect and import of names one to another. "The whole is equal to all its parts;" what real truth, I beseech you, does it teach us? What more is contained in that maxim than what the signification of the word totum, or the whole, does of itself import? And he that knows that the word whole stands for what is made up of all its parts, knows very little less, than that the whole is equal to all its parts. And upon the same ground, I think that this proposition, a hill is higher than a valley, and several the like, may also pass for maxims. But yet masters of mathematics, when they would, as teachers of what they know, initiate others in that science; do not without reason place this, and some other such maxims, at the entrance of their systems; that their scholars, having in the beginning perfectly acquainted their thoughts with these propositions, made in such general terms, may be used to make such reflections, and have these more general propositions, as formed rules and sayings, ready to apply to all particular cases. Not that if they be equally weighed, they are more clear and evident than the particular instances they are brought to confirm; but that, being more familiar to the mind, the very naming them is enough to satisfy the understanding. But this, I say, is more from our custom of using them, and the establishment they have got in our minds, by our often thinking of them, than from the different evidence of the things. But before custom has settled methods of thinking and reasoning in our minds, I am apt to imagine it is quite otherwise; and that the child, when part of his apple is taken away, knows it better in that particular instance, than by this general propo-

sition, the whole is equal to all its parts; and that if one of these have need to be confirmed to him by the other, the general has more need to be let into his mind by the particular, than the particular by the general. For in particulars our knowledge begins, and so spreads itself by degrees to generals. Though afterwards the mind takes the quite contrary course, and having drawn its knowledge into as general propositions as it can, makes those familiar to its thoughts, and accustoms itself to have recourse to them, as to the standards of truth and falsehood. By which familiar use of them, as rules to measure the truth of other propositions, it comes in time to be thought, that more particular propositions have their truth and evidence from their conformity to these more general ones, which in discourse and argumentation are so frequently urged, and constantly admitted. And this I think to be the reason why amongst so many self-evident propositions, the most general only have had the title of maxims.

Maxims, if care be not taken in the use of words, may prove contradictions.

§. 12. One thing farther, I think, it may not be amiss to observe concerning these general maxims, that they are so far from improving or establishing our minds in true knowledge, that if our notions be wrong, loose or unsteady, and we resign up our thoughts to the sound of words, rather than fix them on settled determined ideas of things; I say, these general maxims will serve to confirm us in mistakes; and in such a way of use of words, which is most common, will serve to prove contradictions: v. g. he that, with Des Cartes, shall frame in his mind an idea of what he calls body to be nothing but extension, may easily demonstrate that there is no vacuum, i. e. no space void of body, by this maxim, what is, is. For the idea to which he annexes the name body, being bare extension, his knowledge, that space cannot be without body, is certain. For he knows his own idea of extension clearly and distinctly, and knows that it is what it is, and not another idea, though it be called by these three names, extension, body, space. Which three words, standing for one and the same idea, may no doubt, with

the same evidence and certainty, be affirmed one of another, as each of itself; and it is as certain, that whilst I use them all to stand for one and the same idea, this predication is as true and identical in its signification, that space is body, as this predication is true and identical, that body is body, both in signification and sound.

Instance in vacuum.

§. 13. But if another should come, and make to himself another idea, different from Des Cartes's, of the thing, which yet with Des Cartes, he calls by the same name body; and make his idea, which he expresses by the word body, to be of a thing that hath both extension and solidity together; he will as easily demonstrate, that there may be a vacuum, or space without a body, as Des Cartes demonstrated the contrary. Because the idea to which he gives the name space being barely the simple one of extension; and the idea to which he gives the name body, being the complex idea of extension and resistibility, or solidity, together in the same subject; these two ideas are not exactly one and the same, but in the understanding as distinct as the ideas of one and two, white and black, or as of corporeity and humanity, if I may use those barbarous terms: and therefore the predication of them in our minds, or in words standing for them, is not identical, but the negation of them one of another, viz. this proposition, extension or space is not body, is as true and evidently certain, as this maxim, it is impossible for the same thing to be, and not to be, can make any proposition.

They prove not the existence of things without us.

§. 14. But yet though both these propositions (as you see) may be equally demonstrated, viz. that there may be a vacuum, and that there cannot be a vacuum, by these two certain principles, viz. what is, is; and the same thing cannot be, and not be: yet neither of these principles will serve to prove to us, that any, or what bodies do exist: for that we are left to our senses, to discover to us as far as they can. Those universal and self-evident principles, being only our constant, clear, and distinct knowledge of our own ideas, more general or comprehensive, can assure us of nothing that

passes without the mind; their certainty is founded only upon the knowledge we have of each idea by itself, and of its distinction from others; about which we cannot be mistaken whilst they are in our minds, though we may, and often are mistaken when we retain the names without the ideas; or use them confusedly sometimes for one, and sometimes for another idea. In which cases the force of these axioms, reaching only to the sound, and not the signification of the words, serves only to lead us into confusion, mistake, and errour. It is to show men, that these maxims, however cried up for the great guards of truth, will not secure them from errour in a careless loose use of their words, that I have made this remark. In all that is here suggested concerning their little use for the improvement of knowledge, or dangerous use in undetermined ideas, I have been far enough from saying or intending they should be laid aside, as some have been too forward to charge me. I affirm them to be truths, self-evident truths; and so cannot be laid aside. As far as their influence will reach, it is in vain to endeavour, nor will I attempt to abridge it. But yet, without any injury to truth or knowledge, I may have reason to think their use is not answerable to the great stress which seems to be laid on them; and I may warn men not to make an ill use of them, for the confirming themselves in errours.

Their application dangerous about complex ideas.

§. 15. But let them be of what use they will in verbal propositions, they cannot discover or prove to us the least knowledge of the nature of substances, as they are found and exist without us, any farther than grounded on experience. And though the consequence of these two propositions, called principles, be very clear, and their use not dangerous or hurtful, in the probation of such things, wherein there is no need at all of them for proof, but such as are clear by themselves without them, viz. where our ideas are determined, and known by the names that stand for them: yet when these principles, viz. what is, is; and it is impossible for the same thing to be, and not to be; are made use of in the probation of propositions, wherein are words

standing for complex ideas; v. g. man, horse, gold, virtue; there they are of infinite danger, and most commonly make men receive and retain falsehood for manifest truth, and uncertainty for demonstration: upon which follow errour, obstinacy, and all the mischiefs that can happen, from wrong reasoning. The reason whereof is not, that these principles are less true, or of less force in proving propositions made of terms standing for complex ideas, than where the propositions are about simple ideas. But because men mistake generally, thinking that where the same terms are preserved, the propositions are about the same things, though the ideas they stand for are in truth different; therefore these maxims are made use of to support those, which in sound and appearance are contradictory propositions; as is clear in the demonstrations above-mentioned about a vacuum. So that whilst men take words for things, as usually they do, these maxims may and do commonly serve to prove contradictory propositions: as shall yet be farther made manifest.

§. 16. For instance, let man be that concerning which you would by these first principles demonstrate any thing, and we shall see, that so far as demonstration is by these principles, it is only verbal, and gives us no certain universal true proposition, or knowledge of any being existing without us. First, a child having framed the idea of a man, it is probable that his idea is just like that picture, which the painter makes of the visible appearances joined together; and such a complication of ideas together in his understanding, makes up the simple complex idea, which he calls man, whereof white or flesh-colour in England being one, the child can demonstrate to you that a negro is not a man, because white colour was one of the constant simple ideas of the complex idea he calls man; and therefore he can demonstrate by the principle, it is impossible for the same thing to be, and not to be, that a negro is not a man; the foundation of his certainty being not that universal proposition, which perhaps he never heard nor thought of, but the clear distinct perception he hath of his own simple ideas of black

Instance in man.

and white, which he cannot be persuaded to take, nor can ever mistake one for another, whether he knows that maxim or no: and to this child, or any one who hath such an idea, which he calls man, can you never demonstrate that a man hath a soul, because his idea of man includes no such notion or idea in it. And therefore to him, the principle of what is, is, proves not this matter; but it depends upon collection and observation, by which he is to make his complex idea called man.

§. 17. Secondly, another that hath gone farther in framing and collecting the idea he calls man, and to the outward shape adds laughter and rational discourse, may demonstrate that infants and changelings are no men, by this maxim, it is impossible for the same thing to be, and not to be; and I have discoursed with very rational men, who have actually denied that they are men.

§. 18. Thirdly, perhaps another makes up the complex idea which he calls man, only out of the ideas of body in general, and the powers of language and reason, and leaves out the shape wholly: this man is able to demonstrate, that a man may have no hands, but be quadrupes, neither of those being included in his idea of man; and in whatever body or shape he found speech and reason joined, that was a man; because having a clear knowledge of such a complex idea, it is certain that what is, is.

Little use of these maxims in proofs where we have clear and distinct ideas.

§. 19. So that, if rightly considered, I think we may say, that where our ideas are determined in our minds, and have annexed to them by us known and steady names under those settled determinations, there is little need or no use at all of these maxims, to prove the agreement or disagreement of any of them. He that cannot discern the truth or falsehood of such propositions, without the help of these and the like maxims, will not be helped by these maxims to do it: since he cannot be supposed to know the truth of these maxims themselves without proof, if he cannot know the truth of others without proof, which are as self-evident as these. Upon this ground it is, that intuitive knowledge neither requires nor admits

any proof, one part of it more than another. He that will suppose it does, takes away the foundation of all knowledge and certainty: and he that needs any proof to make him certain, and give his assent to this proposition, that two are equal to two, will also have need of a proof to make him admit, that what is, is. He that needs a probation to convince him, that two are not three, that white is not black, that a triangle is not a circle, &c. or any other two determined distinct ideas are not one and the same, will need also a demonstration to convince him, that it is impossible for the same thing to be, and not to be.

Their use dangerous where our ideas are confused.

§. 20. And as these maxims are of little use, where we have determined ideas, so they are, as I have showed, of dangerous use, where our ideas are not determined; and where we use words that are not annexed to determined ideas, but such as are of a loose and wandering signification, sometimes standing for one, and sometimes for another idea: from which follow mistake and errour, which these maxims (brought as proofs to establish propositions, wherein the terms stand for undetermined ideas) do by their authority confirm and rivet.

CHAP. VIII.

Of Trifling Propositions.

Some propositions bring no increase to our knowledge.

§. 1. WHETHER the maxims treated of in the foregoing chapter be of that use to real knowledge, as is generally supposed, I leave to be considered. This, I think, may confidently be affirmed, that there are universal propositions; which though they be certainly true, yet they add no light to our understandings, bring no increase to our knowledge. Such are,

As first identical propositions.

§. 2. First, all purely identical propositions. These obviously, and at first blush, appear to contain no instruction in them. For when we affirm the said term of itself, whether it be barely verbal, or whether it contains any clear and real idea, it shows us nothing but what we must certainly know before, whether such a proposition be either made by or proposed to us. Indeed that most general one, what is, is, may serve sometimes to show a man the absurdity he is guilty of, when by circumlocution, or equivocal terms, he would, in particular instances, deny the same thing of itself; because nobody will so openly bid defiance to common sense, as to affirm visible and direct contradictions in plain words; or if he does, a man is excused if he breaks off any farther discourse with him. But yet, I think, I may say, that neither that received maxim, nor any other identica proposition teaches us any thing: and though in such kind of propositions, this great and magnified maxim, boasted to be the foundation of demonstration, may be and often is made use of to confirm them; yet all it proves amounts to no more than this, that the same word may with great certainty be affirmed of itself, without any doubt of the truth of any such proposition; and let me add also, without any real knowledge.

§. 3. For at this rate, any very ignorant person, who can but make a proposition, and knows what he means when he says, ay, or no, may make a million of propositions, of whose truth he may be infallibly certain, and yet not know one thing in the world thereby; v. g. what is a soul, is a soul; or a soul is a soul; a spirit is a spirit; a fetiche is a fetiche, &c. These all being equivalent to this proposition, viz. what is, is; i. e. what hath existence, hath existence; or who hath a soul, hath a soul. What is this more than trifling with words? It is but like a monkey shifting his oyster from one hand to the other; and had he but words, might, no doubt, have said, "oyster in right hand is subject, and oyster in left hand is predicate:" and so might have made a self-evident proposition of oysters, i. e. oyster is oyster; and yet, with all this, not have been one whit the wiser or

more knowing: and that way of handling the matter would much at one have satisfied the monkey's hunger, or a man's understanding; and they would have improved in knowledge and bulk together.

I know there are some who, because identical propositions are self-evident, show a great concern for them, and think they do great service to philosophy by crying them up, as if in them was contained all knowledge, and the understanding were led into all truth by them only; I grant as forwardly as any one, that they are all true and self-evident. I grant farther, that the foundation of all our knowledge lies in the faculty we have of perceiving the same idea to be the same, and of discerning it from those that are different, as I have shown in the foregoing chapter. But how that vindicates the making use of identical propositions, for the improvement of knowledge, from the imputation of trifling, I do not see. Let any one repeat, as often as he pleases, that the will is the will, or lay what stress on it he thinks fit; of what use is this, and an infinite the like propositions, for the enlarging our knowledge? Let a man abound, as much as the plenty of words which he has will permit, in such propositions as these; a law is a law, and obligation is obligation; right is right, and wrong is wrong: will these and the like ever help him to an acquaintance with ethics? or instruct him or others in the knowledge of morality? Those who know not, nor perhaps ever will know, what is right and what is wrong, nor the measures of them; can with as much assurance make, and infallibly know the truth of, these and all such propositions, as he that is best instructed in morality can do. But what advance do such propositions give in the knowledge of any thing necessary or useful for their conduct?

He would be thought to do little less than trifle, who, for the enlightening the understanding in any part of knowledge, should be busy with identical propositions, and insist on such maxims as these: substance is substance, and body is body; a vacuum is a vacuum, and a vortex is a vortex; a centaur is a centaur, and a chimera is a chimera, &c. For these and all such are equally

true, equally certain, and equally self-evident. But yet they cannot but be counted trifling, when made use of as principles of instruction, and stress laid on them, as helps to knowledge: since they teach nothing but what every one, who is capable of discourse, knows without being told; viz. that the same term is the same term, and the same idea the same idea. And upon this account it was that I formerly did, and do still think, the offering and inculcating such propositions, in order to give the understanding any new light or inlet into the knowledge of things, no better than trifling.

Instruction lies in something very different; and he that would enlarge his own, or another's mind, to truths he does not yet know, must find out intermediate ideas, and then lay them in such order one by another, that the understanding may see the agreement or disagreement of those in question. Propositions that do this are instructive; but they are far from such as affirm the same term of itself: which is no way to advance one's self or others, in any sort of knowledge. It no more helps to that, than it would help any one, in his learning to read, to have such propositions, as these inculculated to him. An A is an A, and a B is a B; which a man may know as well as any school-master, and yet never be able to read a word as long as he lives. Nor do these, or any such identical propositions, help him one jot forwards in the skill of reading, let him make what use of them he can.

If those who blame my calling them trifling propositions, had but read, and been at the pains to understand, what I have above writ in very plain English, they could not but have seen that by identical propositions I mean only such, wherein the same term, importing the same idea, is affirmed of itself: which I take to be the proper signification of identical propositions: and concerning all such, I think I may continue safely to say, that to propose them as instructive, is no better than trifling. For no one who has the use of reason can miss them, where it is necessary they should be taken notice of; nor doubt of their truth, when he does take notice of them.

But if men will call propositions identical, wherein the same term is not affirmed of itself, whether they

speak more properly than I, others must judge; this is certain, all that they say of propositions that are not identical in my sense, concerns not me, nor what I have said; all that I have said relating to those propositions wherein the same term is affirmed of itself. And I would fain see an instance, wherein any such can be made use of, to the advantage and improvement of any one's knowledge. Instances of other kinds, whatever use may be made of them, concern not me, as not being such as I call identical.

Secondly, when a part of any complex idea is predicated of the whole.

§. 4. Secondly, another sort of trifling propositions is, when a part of the complex idea is predicated of the name of the whole; a part of the definition of the word defined. Such are all propositions wherein the genus is predicated of the species, or more comprehensive of less comprehensive terms: for what information, what knowledge carries this proposition in it, viz. lead is a metal, to a man who knows the complex idea the name lead stands for? all the simple ideas that go to the complex one signified by the term metal, being nothing but what he before comprehended, and signified by the name lead. Indeed, to a man that knows the signification of the word metal, and not of the word lead, it is a shorter way to explain the signification of the word lead, by saying it is a metal, which at once expresses several of its simple ideas, than to enumerate them one by one, telling him it is a body very heavy, fusible, and malleable.

As part of the definition of the term defined.

§. 5. Alike trifling it is, to predicate any other part of the definition of the term defined, or to affirm any one of the simple ideas of a complex one of the name of the whole complex idea; as, all gold is fusible. For fusibility being one of the simple ideas that goes to the making up the complex one the sound gold stands for, what can it be but playing with sounds, to affirm that of the name gold, which is comprehended in its received signification? It would be thought little better than ridiculous to affirm gravely as a truth of moment, that gold is yellow; and I see not how it is any jot more material

to say, it is fusible, unless that quality be left out of the complex idea, of which the sound gold is the mark in ordinary speech. What instruction can it carry with it, to tell one that which he hath been told already, or he is supposed to know before? For I am supposed to know the signification of the word another uses to me, or else he is to tell me. And if I know that the name gold stands for this complex idea of body, yellow, heavy, fusible, malleable, it will not much instruct me to put it solemnly afterwards in a proposition, and gravely say, all gold is fusible. Such propositions can only serve to show the disingenuity of one, who will go from the definition of his own terms, by reminding him sometimes of it; but carry no knowledge with them, but of the signification of words, however certain they be.

Instance, man and palfry.

§. 6. Every man is an animal, or living body, is as certain a proposition as can be; but no more conducing to the knowledge of things, than to say, a palfry is an ambling horse, or a neighing ambling animal, both being only about the signification of words, and make me know but this; that body, sense, and motion, or power of sensation and moving, are three of those ideas that I always comprehend and signify by the word man; and where they are not to be found together, the name man belongs not to that thing: and so of the other, that body, sense, and a certain way of going, with a certain kind of voice, are some of those ideas which I always comprehend, and signify by the word palfry; and when they are not to be found together, the name palfry belongs not to that thing. It is just the same, and to the same purpose, when any term standing for any one or more of the simple ideas, that altogether make up that complex idea which is called man, is affirmed of the term man: v. g. suppose a Roman signified by the word homo all these distinct ideas united in one subject, "corporietas, sensibilitas, potentia se movendi, rationalitas, risibilitas;" he might, no doubt, with great certainty, universally affirm one, more, or all of these together of the word homo, but did no more than say that the word homo, in his country, comprehended in its signification all these

ideas. Much like a romance knight, who by the word palfry signified these ideas; body of a certain figure, four-legged, with sense, motion, ambling, neighing, white, used to have a woman on his back; might with the same certainty universally affirm also any or all of these of the word palfry: but did thereby teach no more, but that the word palfry, in his or romance language, stood for all these, and was not to be applied to any thing, where any of these was wanting. But he that shall tell me, that in whatever thing sense, motion, reason, and laughter, were united, that thing had actually a notion of God, or would be cast into a sleep by opium, made indeed an instructive proposition: because neither having the notion of God, nor being cast into sleep by opium, being contained in the idea signified by the word man, we are by such propositions taught something more than barely what the word man stands for; and therefore the knowledge contained in it is more than verbal.

§. 7. Before a man makes any proposition, he is supposed to understand the terms he uses in it, or else he talks like a parrot, only making a noise by imitation, and framing certain sounds, which he has learnt of others: but not as a rational creature, using them for signs of ideas which he has in his mind. The hearer also is supposed to understand the terms as the speaker uses them, or else he talks jargon, and makes an unintelligible noise. And therefore he trifles with words, who makes such a proposition, which, when it is made, contains no more than one of the terms does, and which a man was supposed to know before; v. g. a triangle hath three sides, or saffron is yellow. And this is no farther tolerable, than where a man goes to explain his terms, to one who is supposed or declares himself not to understand him: and then it teaches only the signification of that word, and the use of that sign.

For this teaches but the signification of words.

§. 8. We can know then the truth of two sorts of propositions with perfect certainty; the one is, of those trifling propositions which have a certainty in them, but it is only a verbal

But no real knowledge.

certainty, but not instructive. And, secondly, we can know the truth, and so may be certain in propositions, which affirm something of another, which is a necessary consequence of its precise complex idea, but not contained in it: as that the external angle of all triangles is bigger than either of the opposite internal angles; which relation of the outward angle to either of the opposite internal angles, making no part of the complex idea signified by the name triangle, this is a real truth, and conveys with it instructive real knowledge.

General propositions concerning substances are often trifling.

§. 9. We having little or no knowledge of what combinations there be of simple ideas existing together in substances, but by our senses, we cannot make any universal certain propositions concerning them, any farther than our nominal essences lead us; which being to a very few and inconsiderable truths, in respect of those which depend on their real constitutions, the general propositions that are made about substances, if they are certain, are for the most part but trifling; and if they are instructive, are uncertain, and such as we can have no knowledge of their real truth, how much soever constant observation and analogy may assist our judgment in guessing. Hence it comes to pass, that one may often meet with very clear and coherent discourses, that amount yet to nothing. For it is plain, that names of substantial beings, as well as others, as far as they have relative significations affixed to them, may, with great truth, be joined negatively and affirmatively in propositions, as their relative definitions make them fit to be so joined; and propositions consisting of such terms, may, with the same clearness, be deduced one from another, as those that convey the most real truths: and all this, without any knowledge of the nature or reality of things existing without us. By this method one may make demonstrations and undoubted propositions in words, and yet thereby advance not one jot in the knowledge of the truth of things; v. g. he that having learnt these following words, with their ordinary mutually relative acceptations annexed to them; v. g. substance, man, animal, form, soul, vegetative, sensitive,

rational, may make several undoubted propositions about the soul, without knowing at all what the soul really is: and of this sort, a man may find an infinite number of propositions, reasonings, and conclusions, in books of metaphysics, school-divinity, and some sort of natural philosophy; and, after all, know as little of God, spirits, or bodies, as he did before he set out.

§. 10. He that hath liberty to define, i. e. to determine the signification of his names of substances (as certainly every one does in effect who makes them stand for his own ideas) and makes their significations at a venture, taking them from his own or other men's fancies, and not from an examination or inquiry into the nature of things themselves; may, with little trouble, demonstrate them one of another, according to those several respects and mutual relations he has given them one to another; wherein, however things agree or disagree in their own nature, he needs mind nothing but his own notions, with the names he hath bestowed upon them: but thereby no more increases his own knowledge, than he does his riches, who, taking a bag of counters, calls one in a certain place a pound, another in another place a shilling, and a third in a third place a penny; and so proceeding, may undoubtedly reckon right, and cast up a great sum, according to his counters so placed, and standing for more or less as he pleases, without being one jot the richer, or without even knowing how much a pound, shilling, or penny is, but only that one is contained in the other twenty times, and contains the other twelve: which a man may also do in the signification of words, by making them, in respect of one another, more, or less, or equally comprehensive. And why.

§. 11. Though yet concerning most words used in discourses, equally argumentative and controversial, there is this more to be complained of, which is the worst sort of trifling, and which sets us yet farther from the certainty of knowledge we hope to attain by them, or find in them; viz. that most writers are so far from instructing us in the nature and knowledge of things, Thirdly, using words variously is trifling with them.

that they use their words loosely and uncertainly, and do not, by using them constantly and steadily in the same significations, make plain and clear deductions of words one from another, and make their discourses coherent and clear (how little soever they were instructive) which were not difficult to do, did they not find it convenient to shelter their ignorance or obstinacy, under the obscurity and perplexedness of their terms: to which, perhaps, inadvertency and ill custom do in many men much contribute.

Marks of verbal propositions:

§. 12. To conclude: barely verbal propositions may be known by these following marks:

1. Predication in abstract.

First, all propositions, wherein two abstract terms are affirmed one of another, are barely about the signification of sounds. For since no abstract idea can be the same with any other but itself, when its abstract name is affirmed of any other term, it can signify no more but this, that it may or ought to be called by that name, or that these two names signify the same idea. Thus should any one say, that parsimony is frugality, that gratitude is justice, that this or that action is or is not temperate; however specious these and the like propositions may at first sight seem, yet when we come to press them, and examine nicely what they contain, we shall find that it all amounts to nothing but the signification of those terms.

2. A part of the definition predicated of any term.

§. 13. Secondly, all propositions wherein a part of the complex idea, which any term stands for, is predicated of that term, are only verbal; v. g. to say that gold is a metal or heavy. And thus all propositions, wherein more comprehensive words, called genera, are affirmed of subordinate or less comprehensive, called species, or individuals, are barely verbal.

When by these two rules we have examined the propositions that make up the discourses we ordinarily meet with both in and out of books, we shall, perhaps, find that a greater part of them, than is usually suspected, are purely about the signification of words, and contain nothing in them, but the use and application of these signs

This, I think, I may lay down for an infallible rule, that wherever the distinct idea any word stands for is not known and considered, and something not contained in the idea is not affirmed or denied of it; there our thoughts stick wholly in sounds, and are able to attain no real truth or falsehood. This, perhaps, if well heeded, might save us a great deal of useless amusement and dispute, and very much shorten our trouble and wandering, in the search of real and true knowledge.

CHAP. IX.

Of our Knowledge of Existence.

General certain propositions concern not existence.

§. 1. HITHERTO we have only considered the essences of things, which being only abstract ideas, and thereby removed in our thoughts from particular existence (that being the proper operation of the mind, in abstraction, to consider an idea under no other existence, but what it has in the understanding) gives us no knowledge of real existence at all. Where by the way we may take notice, that universal propositions, of whose truth or falsehood we can have certain knowledge, concern not existence; and farther, that all particular affirmations or negations, that would not be certain if they were made general, are only concerning existence; they declaring only the accidental union or separation of ideas in things existing, which, in their abstract natures, have no known necessary union or repugnancy.

A threefold knowledge of existence.

§. 2. But leaving the nature of propositions and different ways of predication to be considered more at large in another place, let us proceed now to inquire concerning our knowledge of the existence of things, and how we come by it. I say then, that we have the knowledge of our own existence by intuition; of the existence of God by demonstration; and of other things by sensation.

Our knowledge of our own existence is intuitive.

§. 3. As for our own existence, we perceive it so plainly, and so certainly, that it neither needs nor is capable of any proof. For nothing can be more evident to us, than our own existence; I think, I reason, I feel pleasure and pain: can any of these be more evident to me, than my own existence? if I doubt of all other things, that very doubt makes me perceive my own existence, and will not suffer me to doubt of that. For if I know I feel pain, it is evident I have as certain perception of my own existence, as of the existence of the pain I feel: or if I know I doubt, I have as certain perception of the existence of the thing doubting, as of that thought which I call doubt. Experience then convinces us, that we have an intuitive knowledge of our own existence, and an internal infallible perception that we are. In every act of sensation, reasoning, or thinking, we are conscious to ourselves of our own being; and, in this matter, come not short of the highest degree of certainty.

CHAP. X.

Of our Knowledge of the Existence of a God.

We are capable of knowing certainly that there is a God.

§. 1. THOUGH God has given us no innate ideas of himself; though he has stamped no original characters on our minds, wherein we may read his being; yet having furnished us with those faculties our minds are endowed with, he hath not left himself without witness: since we have sense, perception, and reason, and cannot want a clear proof of him, as long as we carry ourselves about us. Nor can we justly complain of our ignorance in this great point, since he has so plentifully provided us with the means to discover and know him, so far as is necessary to the end of our being, and the great concernment of our happiness. But though this be the most obvious truth

that reason discovers; and though its evidence be (if I mistake not) equal to mathematical certainty: yet it requires thought and attention, and the mind must apply itself to a regular deduction of it from some part of our intuitive knowledge, or else we shall be as uncertain and ignorant of this as of other propositions, which are in themselves capable of clear demonstration. To show therefore that we are capable of knowing, i. e. being certain that there is a God, and how we may come by this certainty, I think we need go no farther than ourselves, and that undoubted knowledge we have of our own existence.

Man knows that he himself is.

§. 2. I think it is beyond question, that man has a clear idea of his own being; he knows certainly he exists, and that he is something. He that can doubt, whether he be any thing or no, I speak not to; no more than I would argue with pure nothing, or endeavour to convince non-entity, that it were something. If any one pretends to be so sceptical, as to deny his own existence (for really to doubt of it is manifestly impossible) let him for me enjoy his beloved happiness of being nothing, until hunger, or some other pain, convince him of the contrary. This then, I think, I may take for a truth, which every one's certain knowledge assures him of, beyond the liberty of doubting, viz. that he is something that actually exists.

He knows also that nothing cannot produce a being, therefore something eternal.

§. 3. In the next place, man knows by an intuitive certainty, that bare nothing can no more produce any real being, than it can be equal to two right angles. If a man knows not that non-entity, or the absence of all being, cannot be equal to two right angles, it is impossible he should know any demonstration in Euclid. If therefore we know there is some real being, and that non-entity cannot produce any real being, it is an evident demonstration, that from eternity there has been something; since what was not from eternity had a beginning; and what had a beginning must be produced by something else.

That eternal being must be most powerful.

§. 4. Next, it is evident, that what had its being and beginning from another, must also have all that which is in, and belongs to its being, from another too. All the powers it has must be owing to, and received from, the same source. This eternal source then of all being must also be the source and original of all power; and so this eternal being must be also the most powerful.

And most knowing.

§. 5. Again, a man finds in himself perception and knowledge. We have then got one step farther; and we are certain now, that there is not only some being, but some knowing intelligent being in the world.

There was a time then, when there was no knowing being, and when knowledge began to be; or else there has been also a knowing being from eternity. If it be said, there was a time when no being had any knowledge, when that eternal being was void of all understanding, I reply, that then it was impossible there should ever have been any knowledge: it being as impossible that things wholly void of knowledge, and operating blindly, and without any perception, should produce a knowing being, as it is impossible that a triangle should make itself three angles bigger than two right ones. For it is as repugnant to the idea of senseless matter, that it should put into itself, sense, perception, and knowledge, as it is repugnant to the idea of a triangle, that it should put into itself greater angles than two right ones.

And therefore God.

§. 6. Thus from the consideration of ourselves, and what we infallibly find in our own constitutions, our reason leads us to the knowledge of this certain and evident truth, that there is an eternal, most powerful, and most knowing being; which whether any one will please to call God, it matters not. The thing is evident, and from this idea duly considered, will easily be deduced all those other attributes, which we ought to ascribe to this eternal being. If nevertheless any one should be found so senselessly arrogant, as to suppose man alone knowing and wise, but yet the product of mere ignorance and chance; and that all the rest of the universe acted

only by that blind hap-hazard: I shall leave with him that very rational and emphatical rebuke of Tully, l. ii. de leg. to be considered at his leisure: "what can be "more sillily arrogant and misbecoming, than for a "man to think that he has a mind and understanding "in him, but yet in all the universe beside there is no "such thing? Or that those things, which with the "utmost stretch of his reason he can scarce comprehend, "should be moved and managed without any reason at "all? "Quid est enim verius, quam neminem esse "oportere tam stulte arrogantem, ut in se mentem & "rationem putet inesse, in cœlo mundoque non putet? "Aut ea quæ vix summa ingenii natione comprehendat, "nulla ratione moveri putet?"

From what has been said, it is plain to me, we have a more certain knowledge of the existence of a God, than of any thing our senses have not immediately discovered to us. Nay, I presume I may say, that we more certainly know that there is a God, than that there is any thing else without us. When I say we know, I mean there is such a knowledge within our reach which we cannot miss, if we will but apply our minds to that, as we do to several other inquiries.

Our idea of a most perfect being not the sole proof of a God.

§. 7. How far the idea of a most perfect being, which a man may frame in his mind, does or does not prove the existence of a God, I will not here examine. For in the different make of men's tempers and application of their thoughts, some arguments prevail more on one, and some on another, for the confirmation of the same truth. But yet, I think, this I may say, that it is an ill way of establishing this truth, and silencing atheists, to lay the whole stress of so important a point as this upon that sole foundation; and take some men's having that idea of God in their minds (for it is evident some men have none, and some worse than none, and the most very different) for the only proof of a deity: and out of an over-fondness of that darling invention cashier, or at least endeavour to invalidate, all other arguments, and forbid us to hearken to those proofs, as being weak or fallacious, which our own existence and

the sensible parts of the universe offer so clearly and cogently to our thoughts, that I deem it impossible for a considering man to withstand them. For I judge it as certain and clear a truth, as can any where be delivered, that the invisible things of God are clearly seen from the creation of the world, being understood by the things that are made, even his eternal power and godhead. Though our own being furnishes us, as I have shown, with an evident and incontestible proof of a deity; and I believe nobody can avoid the cogency of it, who will but as carefully attend to it, as to any other demonstration of so many parts: yet this being so fundamental a truth, and of that consequence, that all religion and genuine morality depend thereon, I doubt not but I shall be forgiven by my reader, if I go over some parts of this argument again, and enlarge a little more upon them.

Something from eternity.

§. 8. There is no truth more evident, than that something must be from eternity. I never yet heard of any one so unreasonable, or that could suppose so manifest a contradiction, as a time wherein there was perfectly nothing: this being of all absurdities the greatest, to imagine that pure nothing, the perfect negation and absence of all beings, should ever produce any real existence.

It being then unavoidable for all rational creatures to conclude, that something has existed from eternity; let us next see what kind of thing that must be.

Two sorts of beings, cogitative and incogitative.

§. 9. There are but two sorts of beings in the world, that man knows or conceives. First, such as are purely material, without sense, perception, or thought, as the clippings of our beards, and parings of our nails.

Secondly, sensible, thinking, perceiving beings, such as we find ourselves to be, which, if you please, we will hereafter call cogitative and incogitative beings, which to our present purpose, if for nothing else, are, perhaps, better terms than material and immaterial.

Incogitative being cannot produce a cogitative.

§. 10. If then there must be something eternal, let us see what sort of being it must be. And to that, it is very obvious to reason, that it must necessarily be a cogitative

being. For it is as impossible to conceive, that ever bare incogitative matter should produce a thinking intelligent being, as that nothing should of itself produce matter. Let us suppose any parcel of matter eternal, great or small, we shall find it, in itself, able to produce nothing. For example; let us suppose the matter of the next pebble we meet with eternal, closely united, and the parts firmly at rest together; if there were no other being in the world, must it not eternally remain so, a dead inactive lump? Is it possible to conceive it can add motion to itself, being purely matter, or produce any thing? Matter then, by its own strength, cannot produce in itself so much as motion: the motion it has must also be from eternity, or else be produced, and added to matter by some other being more powerful than matter; matter, as is evident, having not power to produce motion in itself. But let us suppose motion eternal too; yet matter, incogitative matter and motion, whatever changes it might produce of figure and bulk, could never produce thought: knowledge will still be as far beyond the power of motion and matter to produce, as matter is beyond the power of nothing or nonentity to produce. And I appeal to every one's own thoughts, whether he cannot as easily conceive matter produced by nothing, as thought to be produced by pure matter, when before there was no such thing as thought, or an intelligent being existing? Divide matter into as minute parts as you will (which we are apt to imagine a sort of spiritualizing, or making a thinking thing of it) vary the figure and motion of it as much as you please; a globe, cube, cone, prism, cylinder, &c. whose diameters are but 1000000th part of a gry*, will operate no otherwise upon other bodies of proportionable bulk, than those of an inch or foot diameter; and

* A gry is $\frac{1}{10}$ of a line, a line $\frac{1}{10}$ of an inch, an inch $\frac{1}{10}$ of a philosophical foot, a philosophical foot $\frac{1}{3}$ of a pendulum, whose diadroms, in the latitude of 45 degrees, are each equal to one second of time or $\frac{1}{60}$ of a minute. I have affectedly made use of this measure here, and the parts of it, under a decimal division, with names to them; because, I think, it would be of general convenience, that this should be the common measure, in the commonwealth of letters.

you may as rationally expect to produce sense, thought, and knowledge, by putting together, in a certain figure and motion, gross particles of matter, as by those that are the very minutest, that do any where exist. They knock, impel, and resist one another, just as the greater do, and that is all they can do. So that if we will suppose nothing first, or eternal; matter can never begin to be: if we suppose bare matter, without motion, eternal motion can never begin to be: if we suppose only matter and motion first, or eternal; thought can never begin to be. For it is impossible to conceive that matter, either with or without motion, could have originally in and from itself sense, perception and knowledge; as is evident from hence, that then sense, perception and knowledge must be a property eternally inseparable from matter and every particle of it. Not to add, that though our general or specific conception of matter makes us speak of it as one thing, yet really all matter is not one individual thing, neither is there any such thing existing as one material being, or one single body that we know or can conceive. And therefore if matter were the eternal first cogitative being, there would not be one eternal infinite cogitative being, but an infinite number of eternal finite cogitative beings, independent one of another, of limited force and distinct thoughts, which could never produce that order, harmony and beauty which are to be found in nature. Since therefore whatsoever is the first eternal being must necessarily be cogitative; and whatsoever is first of all things must necessarily contain in it, and actually have, at least, all the perfections that can ever after exist; nor can it ever give to another any perfection that it hath not, either actually in itself, or at least in a higher degree; it necessarily follows, that the first eternal being cannot be matter.

Therefore there has been an eternal wisdom.

§. 11. If therefore it be evident, that something necessarily must exist from eternity, it is also as evident, that that something must necessarily be a cogitative being: for it is as impossible that incogitative matter should produce a cogitative being, as that nothing, or the ne-

gation of all being, should produce a positive being or matter.

§. 12. Though this discovery of the necessary existence of an eternal mind does sufficiently lead us into the knowledge of God; since it will hence follow, that all other knowing beings that have a beginning must depend on him, and have no other ways of knowledge, or extent of power, than what he gives them; and therefore if he made those, he made also the less excellent pieces of this universe, all inanimate beings, whereby his omniscience, power, and providence will be established, and all his other attributes necessarily follow: yet to clear up this a little farther, we will see what doubts can be raised against it.

Whether material or no.

§. 13. First, perhaps it will be said, that though it be as clear as demonstration can make it, that there must be an eternal being, and that being must also be knowing; yet it does not follow, but that thinking being may also be material. Let it be so; it equally still follows, that there is a God. For if there be an eternal, omniscient, omnipotent being, it is certain that there is a God, whether you imagine that being to be material or no. But herein, I suppose, lies the danger and deceit of that supposition: there being no way to avoid the demonstration, that there is an eternal knowing being, men, devoted to matter, would willingly have it granted, that this knowing being is material; and then letting slide out of their minds, or the discourse, the demonstration whereby an eternal knowing being was proved necessarily to exist, would argue all to be matter, and so deny a God, that is, an eternal cogitative being; whereby they are so far from establishing, that they destroy their own hypothesis. For if there can be, in their opinion, eternal matter, without any eternal cogitative being, they manifestly separate matter and thinking, and suppose no necessary connexion of the one with the other, and so establish the necessity of an eternal spirit, but not of matter; since it has been proved already, that an eternal cogitative being is unavoidably to be granted. Now if thinking and matter may be separated, the eternal existence of

matter will not follow from the eternal existence of a cogitative being, and they suppose it to no purpose.

Not material, 1. Because every particle of matter is not cogitative.

§. 14. But now let us suppose they can satisfy themselves or others, that this eternal thinking being is material.

First, I would ask them, Whether they imagine, that all matter, every particle of matter, thinks? This, I suppose, they will scarce say; since then there would be as many eternal thinking beings as there are particles of matter, and so an infinity of gods. And yet if they will not allow matter as matter, that is, every particle of matter to be as well cogitative as extended, they will have as hard a task to make out to their own reasons a cogitative being out of incogitative particles, as an extended being out of unextended parts, if I may so speak.

2. One particle alone of matter cannot be cogitative.

§. 15. Secondly, if all matter does not think, I next ask, "Whether it be only one "atom that does so?" This has as many absurdities as the other; for then this atom of matter must be alone eternal or not. If this alone be eternal, then this alone, by its powerful thought or will, made all the rest of matter. And so we have the creation of matter by a powerful thought, which is that the materialists stick at. For if they suppose one single thinking atom to have produced all the rest of matter, they cannot ascribe that pre-eminency to it upon any other account than that of its thinking, the only supposed difference. But allow it to be by some other way, which is above our conception, it must still be creation, and these men must give up their great maxim, "ex nihilo nil fit." If it be said, that all the rest of matter is equally eternal, as that thinking atom, it will be to say any thing at pleasure, though ever so absurd; for to suppose all matter eternal, and yet one small particle in knowledge and power infinitely above all the rest, is without any the least appearance of reason to frame an hypothesis. Every particle of matter, as matter, is capable of all the same figures and motions of any other; and I challenge any one, in his thoughts, to add any thing else to one above another.

§. 16. If then neither one peculiar atom alone can be this eternal thinking being: nor all matter as matter, i. e. every particle of matter, can be; it only remains, that it is some certain system of matter duly put together, that is this thinking eternal being. This is that, which, I imagine, is that notion which men are aptest to have of God; who would have him a material being, as most readily suggested to them, by the ordinary conceit they have of themselves, and other men, which they take to be material thinking beings. But this imagination, however more natural, is no less absurd than the other: for to suppose the eternal thinking being to be nothing else but a composition of particles of matter each whereof is cogitative, is to ascribe all the wisdom and knowledge of that eternal being only to the juxta-position of parts; than which nothing can be more absurd. For unthinking particles of matter, however put together, can have nothing thereby added to them, but a new relation of position, which it is impossible should give thought and knowledge to them.

3. A system of incogitative matter cannot be cogitative.

§. 17. But farther, this corporeal system either has all its parts at rest, or it is a certain motion of the parts wherein its thinking consists. If it be perfectly at rest, it is but one lump, and so can have no privileges above one atom.

Whether in motion or at rest.

If it be the motion of its parts, on which its thinking depends, all the thoughts there must be unavoidably accidental and limited; since all the particles that by motion cause thought, being each of them in itself without any thought, cannot regulate its own motions, much less be regulated by the thought of the whole: since that thought is not the cause of motion (for then it must be antecedent to it, and so without it) but the consequence of it, whereby freedom, power, choice, and all rational and wise thinking or acting, will be quite taken away: so that such a thinking being will be no better nor wiser than pure blind matter; since to resolve all into the accidental unguided motions of blind matter, or into thought depending on unguided motions of blind matter,

is the same thing; not to mention the narrowness of such thoughts and knowledge that must depend on the motion of such parts. But there needs no enumeration of any more absurdities and impossibilities in this hypothesis (however full of them it be) than that beforementioned; since let this thinking system be all, or a part of the matter of the universe, it is impossible that any one particle should either know its own, or the motion of any other particle, or the whole know the motion of every particle; and so regulate its own thoughts or motions, or indeed have any thought resulting from such motion.

Matter not co-eternal with an eternal mind.

§. 18. Others would have matter to be eternal, notwithstanding that they allow an eternal, cogitative, immaterial being. This, though it take not away the being of a God, yet since it denies one and the first great piece of his workmanship, the creation, let us consider it a little. Matter must be allowed eternal: Why? because you cannot conceive how it can be made out of nothing: why do you not also think yourself eternal? You will answer perhaps, because about twenty or forty years since you began to be. But if I ask you what that you is, which began then to be, you can scarce tell me. The matter whereof you are made, began not then to be; for if it did, then it is not eternal: but it began to be put together in such a fashion and frame as makes up your body; but yet that frame of particles is not you, it makes not that thinking thing you are; (for I have now to do with one who allows an eternal, immaterial thinking being, but would have unthinking matter eternal too) therefore when did that thinking being begin to be? If it did never begin to be, then have you always been a thinking thing from eternity; the absurdity whereof I need not confute, till I meet with one who is so void of understanding as to own it. If therefore you can allow a thinking thing to be made out of nothing (as all things that are not eternal must be) why also can you not allow it possible, for a material being to be made out of nothing, by an equal power, but that you have the experience of the one in view, and not of

the other? Though, when well considered, creation of a spirit will be found to require no less power than the creation of matter. Nay possibly, if we would emancipate ourselves from vulgar notions, and raise our thoughts as far as they would reach, to a closer contemplation of things, we might be able to aim at some dim and seeming conception how matter might at first be made, and begin to exist by the power of that eternal first being: but to give beginning and being to a spirit, would be found a more inconceivable effect of omnipotent power. But, this being what would perhaps lead us too far from the notions on which the philosophy now in the world is built, it would not be pardonable to deviate so far from them; or to inquire, so far as grammar itself would authorize, if the common settled opinion opposes it; especially in this place, where the received doctrine serves well enough to our present purpose, and leaves this past doubt, that the creation or beginning of any one substance out of nothing, being once admitted, the creation of all other, but the Creator himself, may, with the same ease, be supposed.

§. 19. But you will say, is it not impossible to admit of the making any thing out of nothing, since we cannot possibly conceive it? I answer, No; 1. Because it is not reasonable to deny the power of an infinite being, because we cannot comprehend its operations. We do not deny other effects upon this ground, because we cannot possibly conceive the manner of their production. We cannot conceive how any thing but impulse of body can move body; and yet that is not a reason sufficient to make us deny it impossible, against the constant experience we have of it in ourselves, in all our voluntary motions, which are produced in us only by the free action or thought of our own minds; and are not, nor can be the effects of the impulse or determination of the motion of blind matter in or upon our own bodies; for then it could not be in our power or choice to alter it. For example: my right hand writes, whilst my left hand is still: what causes rest in one, and motion in the other? Nothing but my will, a thought of my mind; my thought only changing, the right hand rests, and the left hand

moves. This is matter of fact, which cannot be denied: explain this and make it intelligible, and then the next step will be to understand creation. For the giving a new determination to the motion of the animal spirits (which some make use of to explain voluntary motion) clears not the difficulty one jot: to alter the determination of motion, being in this case no easier nor less than to give motion itself; since the new determination given to the animal spirits must be either immediately by thought, or by some other body put in their way by thought, which was not in their way before, and so must owe its motion to thought; either of which leaves voluntary motion as unintelligible as it was before. In the mean time it is an overvaluing ourselves to reduce all to the narrow measure of our capacities; and to conclude all things impossible to be done, whose manner of doing exceeds our comprehension. This is to make our comprehension infinite, or God finite, when what we can do is limited to what we can conceive of it. If you do not understand the operations of your own finite mind, that thinking thing within you, do not deem it strange, that you cannot comprehend the operations of that eternal infinite mind, who made and governs all things, and whom the heaven of heavens cannot contain.

CHAP. XI.

Of our Knowledge of the Existence of other Things.

It is to be had only by sensation.

§. 1. THE knowledge of our own being we have by intuition. The existence of a God reason clearly makes known to us, as has been shown.

The knowledge of the existence of any other thing, we can have only by sensation: for there being no necessary connexion of real existence with any idea a man hath in his memory, nor of any other existence but that of God, with the existence of any particular man; no particular man can know the existence of any other be-

ing, but only when by actual operating upon him, it makes itself perceived by him. For the having the idea of any thing in our mind, no more proves the existence of that thing, than the picture of a man evidences his being in the world, or the visions of a dream make thereby a true history.

§. 2. It is therefore the actual receiving of ideas from without, that gives us notice of the existence of other things, and makes us know that something doth exist at that time without us, which causes that idea in us, though perhaps we neither know nor consider how it does it: for it takes not from the certainty of our senses, and the ideas we receive by them, that we know not the manner wherein they are produced: v. g. whilst I write this, I have, by the paper affecting my eyes, that idea produced in my mind, which whatever object causes, I call white; by which I know that that quality or accident (i. e. whose appearance before my eyes always causes that idea) doth really exist, and hath a being without me. And of this, the greatest assurance I can possibly have, and to which my faculties can attain, is the testimony of my eyes, which are the proper and sole judges of this thing, whose testimony I have reason to rely on as so certain, that I can no more doubt, whilst I write this, that I see white and black, and that something really exists, that causes that sensation in me, than that I write or move my hand; which is a certainty as great as human nature is capable of, concerning the existence of any thing, but a man's self alone, and of God.

Instance, whiteness of this paper.

§. 3. The notice we have by our senses, of the existence of things without us, though it be not altogether so certain as our intuitive knowledge, or the deductions of our reason employed about the clear abstract ideas of our own minds; yet it is an assurance that deserves the name of knowledge. If we persuade ourselves, that our faculties act and inform us right, concerning the existence of those objects that affect them, it cannot pass for an ill-grounded confidence: for I think nobody

This though not so certain as demonstration, yet may be called knowledge, and proves the existence of things without us.

can, in earnest, be so sceptical, as to be uncertain of the existence of those things which he sees and feels. At least, he that can doubt so far (whatever he may have with his own thoughts) will never have any controversy with me; since he can never be sure I say any thing contrary to his own opinion. As to myself, I think God has given me assurance enough of the existence of things without me; since by their different application I can produce in myself both pleasure and pain, which is one great concernment of my present state. This is certain, the confidence that our faculties do not herein deceive us is the greatest assurance we are capable of, concerning the existence of material beings. For we cannot act any thing, but by our faculties; nor talk of knowledge itself, but by the helps of those faculties, which are fitted to apprehend even what knowledge is. But besides the assurance we have from our senses themselves, that they do not err in the information they give us, of the existence of things without us, when they are affected by them, we are farther confirmed in this assurance by other concurrent reasons.

1. Because we cannot have them but by the inlet of the senses.

§. 4. First, it is plain those perceptions are produced in us by exterior causes affecting our senses; because those that want the organs of any sense, never can have the ideas belonging to that sense produced in their minds. This is too evident to be doubted: and therefore we cannot but be assured, that they come in by the organs of that sense, and no other way. The organs themselves, it is plain, do not produce them; for then the eyes of a man in the dark would produce colours, and his nose smell roses in the winter: but we see nobody gets the relish of a pine-apple, till he goes to the Indies, where it is, and tastes it.

2. Because an idea from actual sensation, and another from memory, are very distinct perceptions.

§. 5. Secondly, because sometimes I find, that I cannot avoid the having those ideas produced in my mind. For though when my eyes are shut, or windows fast, I can at pleasure recal to my mind the ideas of light, or the sun, which former sensations had lodged in my memory; so I can at pleasure

lay by that idea, and take into my view that of the smell of a rose, or taste of sugar. But, if I turn my eyes at noon towards the sun, I cannot avoid the ideas, which the light, or sun, then produces in me. So that there is a manifest difference between the ideas laid up in my memory, (over which, if they were there only, I should have constantly the same power to dispose of them, and lay them by at pleasure) and those which force themselves upon me, and I cannot avoid having. And therefore it must needs be some exterior cause, and the brisk acting of some objects without me, whose efficacy I cannot resist, that produces those ideas in my mind, whether I will or no. Besides, there is nobody who doth not perceive the difference in himself between contemplating the sun, as he hath the idea of it in his memory, and actually looking upon it: of which two, his perception is so distinct, that few of his ideas are more distinguishable one from another. And therefore he hath certain knowledge, that they are not both memory, or the actions of his mind, and fancies only within him; but that actual seeing hath a cause without.

3. Pleasure or pain which accompanies actual sensation, accompanies not the returning of those ideas without the external objects.

§. 6. Thirdly, add to this, that many of those ideas are produced in us with pain, which afterwards we remember without the least offence. Thus the pain of heat or cold, when the idea of it is revived in our minds, gives us no disturbance; which, when felt, was very troublesome, and is again, when actually repeated; which is occasioned by the disorder the external object causes in our bodies when applied to it. And we remember the pains of hunger, thirst, or the head-ach, without any pain at all; which would either never disturb us, or else constantly do it, as often as we thought of it, were there nothing more but ideas floating in our minds, and appearances entertaining our fancies, without the real existence of things affecting us from abroad. The same may be said of pleasure, accompanying several actual sensations: and though mathematical demonstrations depend not upon sense, yet the examining them by diagrams gives great credit to

the evidence of our sight, and seems to give it a certainty approaching to that of demonstration itself. For it would be very strange, that a man should allow it for an undeniable truth, that two angles of a figure, which he measures by lines and angles of a diagram, should be bigger one than the other; and yet doubt of the existence of those lines and angles, which by looking on he makes use of to measure that by.

4. Our senses assist one another's testimony of the existence of outward things.

§. 7. Fourthly, our senses in many cases bear witness to the truth of each other's report, concerning the existence of sensible things without us. He that sees a fire, may, if he doubt whether it be any thing more than a bare fancy, feel it too; and be convinced by putting his hand in it. Which certainly could never be put into such exquisite pain, by a bare idea or phantom, unless that the pain be a fancy too: which yet he cannot, when the burn is well, by raising the idea of it, bring upon himself again.

Thus I see, whilst I write this, I can change the appearance of the paper: and by designing the letters tell before-hand what new idea it shall exhibit the very next moment, by barely drawing my pen over it: which will neither appear (let me fancy as much as I will) if my hands stand still; or though I move my pen, if my eyes be shut: nor when those characters are once made on the paper, can I choose afterwards but see them as they are; that is, have the ideas of such letters as I have made. Whence it is manifest, that they are not barely the sport and play of my own imagination, when I find that the characters, that were made at the pleasure of my own thought, do not obey them; nor yet cease to be, whenever I shall fancy it; but continue to affect the senses constantly and regularly, according to the figures I made them. To which if we will add, that the sight of those shall, from another man, draw such sounds, as I beforehand design they shall stand for; there will be little reason left to doubt, that those words I write do really exist without me, when they cause a long series of regular sounds to affect my ears, which could not be the effect

of my imagination, nor could my memory retain them in that order.

§. 8. But yet, if after all this any one will be so sceptical, as to distrust his senses, and to affirm that all we see and hear, feel and taste, think and do, during our whole being, is but the series and deluding appearances of a long dream, whereof there is no reality; and therefore will question the existence of all things, or our knowledge of any thing; I must desire him to consider, that if all be a dream, that he doth but dream, that he makes the question; and so it is not much matter, that a waking man should answer him. But yet, if he pleases, he may dream that I make him this answer, that the certainty of things existing in rerum natura, when we have the testimony of our senses for it, is not only as great as our frame can attain to, but as our condition needs. For our faculties being suited not to the full extent of being, nor to a perfect, clear, comprehensive knowledge of things free from all doubt and scruple; but to the preservation of us, in whom they are; and accommodated to the use of life; they serve to our purpose well enough, if they will but give us certain notice of those things, which are convenient or inconvenient to us. For he that sees a candle burning, and hath experimented the force of its flame, by putting his finger in it, will little doubt that this is something existing without him, which does him harm, and puts him to great pain: which is assurance enough, when no man requires greater certainty to govern his actions by, than what is as certain as his actions themselves. And if our dreamer pleases to try, whether the glowing heat of a glass furnace be barely a wandering imagination in a drowsy man's fancy; by putting his hand into it, he may perhaps be wakened into a certainty greater than he could wish, that it is something more than bare imagination. So that this evidence is as great as we can desire, being as certain to us as our pleasure or pain, i. e. happiness or misery; beyond which we have no concernment, either of knowing or being. Such an assurance of the existence of things without us, is sufficient to direct us

This certainty is as great as our condition needs.

in the attaining the good, and avoiding the evil, which is caused by them; which is the important concernment we have of being made acquainted with them.

But reaches no farther than actual sensation.

§. 9. In fine then, when our senses do actually convey into our understandings any idea, we cannot but be satisfied that there doth something at that time really exist without us, which doth affect our senses, and by them give notice of itself to our apprehensive faculties, and actually produce that idea which we then perceive: and we cannot so far distrust their testimony, as to doubt, that such collections of simple ideas, as we have observed by our senses to be united together, do really exist together. But this knowledge extends as far as the present testimony of our senses, employed about particular objects that do then affect them, and no farther. For if I saw such a collection of simple ideas, as is wont to be called man, existing together one minute since, and am now alone, I cannot be certain that the same man exists now, since there is no necessary connexion of his existence a minute since, with his existence now: by a thousand ways he may cease to be, since I had the testimony of my senses for his existence. And if I cannot be certain, that the man I saw last to-day is now in being, I can less be certain that he is so, who hath been longer removed from my senses, and I have not seen since yesterday, or since the last year: and much less can I be certain of the existence of men that I never saw. And therefore though it be highly probable, that millions of men do now exist, yet, whilst I am alone writing this, I have not that certainty of it which we strictly call knowledge; though the great likelihood of it puts me past doubt, and it be reasonable for me to do several things upon the confidence that there are men (and men also of my acquaintance, with whom I have to do) now in the world: but this is but probability, not knowledge.

Folly to expect demonstration in every thing.

§. 10. Whereby yet we may observe, how foolish and vain a thing it is, for a man of a narrow knowledge, who having reason given him to judge of the different evidence and probability of things, and to be swayed accordingly;

how vain, I say, it is to expect demonstration and certainty in things not capable of it; and refuse assent to very rational propositions, and act contrary to very plain and clear truths, because they cannot be made out so evident, as to surmount every the least (I will not say reason, but) pretence of doubting. He that in the ordinary affairs of life would admit of nothing but direct plain demonstration, would be sure of nothing in this world, but of perishing quickly. The wholesomeness of his meat or drink would not give him reason to venture on it: and I would fain know, what it is he could do upon such grounds, as are capable of no doubt, no objection.

Past existence is known by memory.

§. 11. As when our senses are actually employed about any object, we do know that it does exist; so by our memory we may be assured, that heretofore things that affected our senses have existed. And thus we have knowledge of the past existence of several things, whereof our senses having informed us, our memories still retain the ideas; and of this we are past all doubt, so long as we remember well. But this knowledge also reaches no farther than our senses have formerly assured us. Thus seeing water at this instant, it is an unquestionable truth to me, that water doth exist: and remembering that I saw it yesterday, it will also be always true; and as long as my memory retains it, always an undoubted proposition to me, that water did exist on the 10th of July, 1688, as it will also be equally true, that a certain number of very fine colours did exist, which at the same time I saw upon a bubble of that water: but, being now quite out of the sight both of the water and bubbles too, it is no more certainly known to me that the water doth now exist, than that the bubbles or colours therein do so: it being no more necessary that water should exist to-day, because it existed yesterday, than that the colours or bubbles exist to-day, because they existed yesterday; though it be exceedingly much more probable, because water hath been observed to continue long in existence, but bubbles and the colours on them quickly cease to be.

The existence of spirits not knowable.

§. 12. What ideas we have of spirits, and how we come by them, I have already shown. But though we have those ideas in our minds, and know we have them there, the having the ideas of spirits does not make us know, that any such things do exist without us, or that there are any finite spirits, or any other spiritual beings but the eternal God. We have ground from revelation, and several other reasons, to believe with assurance that there are such creatures: but, our senses not being able to discover them, we want the means of knowing their particular existences. For we can no more know, that there are finite spirits really existing, by the idea we have of such beings in our minds, than by the ideas any one has of fairies, or centaurs, he can come to know that things answering those ideas do really exist.

And therefore concerning the existence of finite spirits, as well as several other things, we must content ourselves with the evidence of faith; but universal certain propositions concerning this matter are beyond our reach. For however true it may be, v. g. that all the intelligent spirits that God ever created, do still exist; yet it can never make a part of our certain knowledge. These and the like propositions we may assent to as highly probable, but are not, I fear, in this state capable of knowing. We are not then to put others upon demonstrating, nor ourselves upon search of universal certainty in all those matters, wherein we are not capable of any other knowledge, but what our senses give us in this or that particular.

Particular propositions concerning existence are knowable.

§. 13. By which it appears, that there are two sorts of propositions. 1. There is one sort of propositions concerning the existence of any thing answerable to such an idea: as having the idea of an elephant, phœnix, motion, or an angel, in my mind, the first and natural inquiry is, Whether such a thing does any where exist? And this knowledge is only of particulars. No existence of any thing without us, but only of God, can certainly be known farther than our senses inform us. 2. There is another sort of propositions, wherein is ex-

pressed the agreement or disagreement of our abstract ideas, and their dependence on one another. Such propositions may be universal or certain. So having the idea of God and myself, of fear and obedience, I cannot but be sure that God is to be feared and obeyed by me; and this proposition will be certain, concerning man in general, if I have made an abstract idea of such a species, whereof I am one particular. But yet this proposition, how certain soever, that men ought to fear and obey God, proves not to me the existence of men in the world, but will be true of all such creatures, whenever they do exist: which certainty of such general propositions, depends on the agreement or disagreement to be discovered in those abstract ideas.

And general propositions concerning abstract ideas.

§. 14. In the former case, our knowledge is the consequence of the existence of things producing ideas in our minds by our senses: in the latter, knowledge is the consequence of the ideas (be they what they will) that are in our minds producing there general certain propositions. Many of these are called æternæ veritates, and all of them indeed are so; not from being written all or any of them in the minds of all men, or that they were any of them propositions in one's mind, till he, having got the abstract ideas, joined or separated them by affirmation or negation. But wheresoever we can suppose such a creature as man is, endowed with such faculties, and thereby furnished with such ideas as we have, we must conclude, he must needs, when he applies his thoughts to the consideration of his ideas, know the truth of certain propositions, that will arise from the agreement or disagreement which he will perceive in his own ideas. Such propositions are therefore called eternal truths, not because they are eternal propositions actually formed, and antecedent to the understanding, that at any time makes them; nor because they are imprinted on the mind from any patterns, that are any where out of the mind and existed before: but because being once made about abstract ideas, so as to be true, they will, whenever they can be supposed to be made again at any time past or to come, by a mind having

those ideas, always actually be true. For names being supposed to stand perpetually for the same ideas, and the same ideas having immutably the same habitudes one to another; propositions concerning any abstract ideas, that are once true, must needs be eternal verities.

CHAP. XII.

Of the Improvement of our Knowledge.

Knowledge is not from maxims.

§. 1. IT having been the common received opinion amongst men of letters, that maxims were the foundation of all knowledge; and that the sciences were each of them built upon certain præcognita, from whence the understanding was to take its rise, and by which it was to conduct itself, in its inquiries into the matters belonging to that science; the beaten road of the schools has been to lay down in the beginning one or more general propositions, as foundations whereon to build the knowledge that was to be had of that subject. These doctrines, thus laid down for foundations of any science, were called principles, as the beginnings from which we must set out, and look no farther backwards in our inquiries, as we have already observed.

(The occasion of that opinion.)

§. 2. One thing which might probably give an occasion to this way of proceeding in other sciences, was (as I suppose) the good success it seemed to have in mathematics, wherein men, being observed to attain a great certainty of knowledge, these sciences came by pre-eminence to be called, Μαθήματα, and Μάθησις, learning, or things learned, thoroughly learned, as having of all others the greatest certainty, clearness, and evidence in them.

But from the comparing clear and distinct ideas.

§. 3. But if any one will consider, he will (I guess) find, that the great advancement and certainty of real knowledge, which men arrived to in these sciences, was not owing

to the influence of these principles, nor derived from any peculiar advantage they received from two or three general maxims, laid down in the beginning; but from the clear, distinct, complete ideas their thoughts were employed about, and the relation of equality and excess so clear between some of them, that they had an intuitive knowledge, and by that a way to discover it in others, and this without the help of those maxims. For I ask, is it not possible for a young lad to know, that his whole body is bigger than his little finger, but by virtue of this axiom, that the whole is bigger than a part; nor be assured of it, till he has learned that maxim? Or cannot a country wench know, that having received a shilling from one that owes her three, and a shilling also from another that owes her three, the remaining debts in each of their hands are equal? Cannot she know this, I say, unless she fetch the certainty of it from this maxim, that if you take equals from equals, the remainder will be equals, a maxim which possibly she never heard or thought of? I desire any one to consider, from what has been elsewhere said, which is known first and clearest by most people, the particular instance, or the general rule; and which it is that gives life and birth to the other. These general rules are but the comparing our more general and abstract ideas, which are the workmanship of the mind made, and names given to them, for the easier dispatch in its reasonings, and drawing into comprehensive terms, and short rules, its various and multiplied observations. But knowledge began in the mind, and was founded on particulars; though afterwards, perhaps, no notice be taken thereof: it being natural for the mind (forward still to enlarge its knowledge) most attentively to lay up those general notions, and make the proper use of them, which is to disburden the memory of the cumbersome load of particulars. For I desire it may be considered what more certainty there is to a child, or any one, that his body, little finger and all, is bigger than his little finger alone, after you have given to his body the name whole, and to his little finger the name part, than he could have had before; or what new knowledge concerning his

body can these two relative terms give him, which he could not have without them? Could he not know that his body was bigger than his little finger, if his language were yet so imperfect, that he had no such relative terms as whole and part? I ask farther, when he has got these names, how is he more certain that his body is a whole, and his little finger a part, than he was or might be certain, before he learnt those terms, that his body was bigger than his little finger? Any one may as reasonably doubt or deny that his little finger is a part of his body, as that it is less than his body. And he that can doubt whether it be less, will as certainly doubt whether it be a part. So that the maxim, the whole is bigger than a part, can never be made use of to prove the little finger less than the body, but when it is useless, by being brought to convince one of a truth which he knows already. For he that does not certainly know that any parcel of matter, with another parcel of matter joined to it, is bigger than either of them alone, will never be able to know it by the help of these two relative terms whole and part, make of them what maxim you please.

Dangerous to build upon precarious principles.

§. 4. But be it in the mathematics as it will, whether it be clearer than taking an inch from a black line of two inches, and an inch from a red line of two inches, the remaining parts of the two lines will be equal, or that if you take equals from equals, the remainder will be equals: which, I say, of these two is the clearer and first known, I leave it to any one to determine, it not being material to my present occasion. That which I have here to do, is to inquire, whether if it be the readiest way to knowledge to begin with general maxims, and build upon them, it be yet a safe way to take the principles, which are laid down in any other science as unquestionable truths; and so receive them without examination, and adhere to them, without suffering them to be doubted of, because mathematicians have been so happy, or so fair, to use none but self-evident and undeniable. If this be so, I know not what may not pass

for truth in morality, what may not be introduced and proved in natural philosophy.

Let that principle of some of the philosophers, that all is matter, and that there is nothing else, be received for certain and indubitable, and it will be easy to be seen by the writings of some that have revived it again in our days, what consequences it will lead us into. Let any one, with Polemo, take the world; or with the stoics, the æther, or the sun; or with Anaximenes, the air; to be God; and what a divinity, religion and worship must we needs have! Nothing can be so dangerous as principles thus taken up without questioning or examination; especially if they be such as concern morality, which influence men's lives, and give a bias to all their actions. Who might not justly expect another kind of life in Aristippus, who placed happiness in bodily pleasure; and in Antisthenes, who made virtue sufficient to felicity? And he who, with Plato, shall place beatitude in the knowledge of God, will have his thoughts raised to other contemplations, than those who look not beyond this spot of earth, and those perishing things which are to be had in it. He that, with Archelaus, shall lay it down as a principle, that right and wrong, honest and dishonest, are defined only by laws and not by nature, will have other measures of moral rectitude, and pravity, than those who take it for granted, that we are under obligations antecedent to all human constitutions.

This is no certain way to truth.

§. 5. If therefore those that pass for principles are not certain (which we must have some way to know, that we may be able to distinguish them from those that are doubtful) but are only made so to us by our blind assent, we are liable to be misled by them; and instead of being guided into truth, we shall, by principles, be only confirmed in mistake and errour.

But to compare clear complete ideas under steadynames.

§. 6. But since the knowledge of the certainty of principles, as well as of all other truths, depends only upon the perception we have of the agreement or disagreement of our ideas, the way to improve our know-

ledge is not, I am sure, blindly, and with an implicit faith, to receive and swallow principles; but is, I think, to get and fix in our minds clear, distinct, and complete ideas, as far as they are to be had, and annex to them proper and constant names. And thus, perhaps, without any other principles, but barely considering those ideas, and by comparing them one with another, finding their agreement and disagreement, and their several relations and habitudes; we shall get more true and clear knowledge, by the conduct of this one rule, than by taking up principles, and thereby putting our minds into the disposal of others.

The true method of advancing knowledge is by considering our abstract ideas.

§. 7. We must therefore, if we will proceed as reason advises, adapt our methods of inquiry to the nature of the ideas we examine, and the truth we search after. General and certain truths are only founded in the habitudes and relations of abstract ideas. A sagacious and methodical application of our thoughts, for the finding out these relations, is the only way to discover all that can be put with truth and certainty concerning them into general propositions. By what steps we are to proceed in these, is to be learned in the schools of the mathematicians, who from very plain and easy beginnings, by gentle degrees, and a continued chain of reasonings, proceed to the discovery and demonstration of truths, that appear at first sight beyond human capacity. The art of finding proofs, and the admirable methods they have invented for the singling out, and laying in order, those intermediate ideas, that demonstratively show the equality or inequality of unapplicable quantities, is that which has carried them so far, and produced such wonderful and unexpected discoveries: but whether something like this, in respect of other ideas, as well as those of magnitude, may not in time be found out, I will not determine. This, I think, I may say, that if other ideas, that are the real as well as nominal essences of their species, were pursued in the way familiar to mathematicians, they would carry our thoughts farther, and with greater evidence and clearness, than possibly we are apt to imagine.

§. 8. This gave me the confidence to advance that conjecture, which I suggest, chap. iii. viz. that morality is capable of demonstration, as well as mathematics. For the ideas that ethics are conversant about, being all real essences, and such as I imagine have a discoverable connexion and agreement one with another; so far as we can find their habitudes and relations, so far we shall be possessed of certain, real, and general truths: and I doubt not, but, if a right method were taken, a great part of morality might be made out with that clearness, that could leave, to a considering man, no more reason to doubt, than he could have to doubt of the truth of propositions in mathematics, which have been demonstrated to him.

By which morality also may be made clearer.

§. 9. In our search after the knowledge of substances, our want of ideas, that are suitable to such a way of proceeding, obliges us to a quite different method. We advance not here, as in the other (where our abstract ideas are real as well as nominal essences) by contemplating our ideas, and considering their relations and correspondencies; that helps us very little, for the reasons, that in another place we have at large set down. By which I think it is evident, that substances afford matter of very little general knowledge; and the bare contemplation of their abstract ideas will carry us but a very little way in the search of truth and certainty. What then are we to do for the improvement of our knowledge in substantial beings? Here we are to take a quite contrary course; the want of ideas of their real essences, sends us from our own thoughts to the things themselves, as they exist. Experience here must teach me what reason cannot; and it is by trying alone, that I can certainly know, what other qualities co-exist with those of my complex idea, v. g. whether that yellow, heavy, fusible body, I call gold, be malleable, or no; which experience (which way ever it prove, in that particular body, I examine) makes me not certain, that it is so in all, or any other yellow, heavy, fusible bodies, but that which I have

But knowledge of bodies is to be improved only by experience.

tried. Because it is no consequence one way or the other from my complex idea; the necessity or inconsistence of malleability hath no visible connexion with the combination of that colour, weight, and fusibility in any body. What I have said here of the nominal essence of gold, supposed to consist of a body of such a determinate colour, weight, and fusibility, will hold true, if malleableness, fixedness and solubility in aqua regia be added to it. Our reasonings from these ideas will carry us but a little way in the certain discovery of the other properties in those masses of matter wherein all these are to be found. Because the other properties of such bodies, depending not on these, but on that unknown real essence, on which these also depend, we cannot by them discover the rest; we can go no farther than the simple ideas of our nominal essence will carry us, which is very little beyond themselves; and so afford us but very sparingly any certain, universal, and useful truths. For upon trial having found that particular piece (and all others of that colour, weight, and fusibility, that I ever tried) malleable, that also makes now perhaps a part of my complex idea, part of my nominal essence of gold: whereby though I make my complex idea, to which I affix the name gold, to consist of more simple ideas than before; yet still it not containing the real essence of any species of bodies, it helps me not certainly to know (I say to know, perhaps it may to conjecture) the other remaining properties of that body, farther than they have a visible connexion with some or all of the simple ideas, that make up my nominal essence. For example, I cannot be certain from this complex idea, whether gold be fixed, or no; because, as before, there is no necessary connexion or inconsistence to be discovered betwixt a complex idea of a body yellow, heavy, fusible, malleable; betwixt these, I say, and fixedness; so that I may certainly know, that in whatsoever body these are found, there fixedness is sure to be. Here again for assurance, I must apply myself to experience; as far as that reaches, I may have certain knowledge, but no farther.

§. 10. I deny not, but a man, accustomed to rational and regular experiments, shall be able to see farther into the nature of bodies, and guess righter at their yet unknown properties, than one that is a stranger to them: but yet, as I have said, this is but judgment and opinion, not knowledge and certainty. This way of getting and improving our knowledge in substances only by experience and history, which is all that the weakness of our faculties in this state of mediocrity, which we are in in this world, can attain to; makes me suspect, that natural philosophy is not capable of being made a science. We are able, I imagine, to reach very little general knowledge concerning the species of bodies, and their several properties. Experiments and historical observations we may have, from which we may draw advantages of ease and health, and thereby increase our stock of conveniencies for this life; but beyond this I fear our talents reach not, nor are our faculties, as I guess, able to advance.

This may procure us convenience, not science.

§. 11. From whence it is obvious to conclude, that since our faculties are not fitted to penetrate into the internal fabric and real essences of bodies; but yet plainly discover to us the being of a God, and the knowledge of ourselves, enough to lead us into a full and clear discovery of our duty and great concernment; it will become us, as rational creatures, to employ those faculties we have about what they are most adapted to, and follow the direction of nature, where it seems to point us out the way. For it is rational to conclude that our proper employment lies in those inquiries, and in that sort of knowledge which is most suited to our natural capacities, and carries in it our greatest interest, i. e. the condition of our eternal estate. Hence I think I may conclude, that morality is the proper science and business of mankind in general; (who are both concerned, and fitted to search out their summum bonum) as several arts, conversant about several parts of nature, are the lot and private talent of particular men, for the common use of human life, and their

We are fitted for moral knowledge and natural improvements.

own particular subsistence in this world. Of what consequence the discovery of one natural body, and its properties, may be to human life, the whole great continent of America is a convincing instance: whose ignorance in useful arts, and want of the greatest part of the conveniencies of life, in a country that abounded with all sorts of natural plenty, I think may be attributed to their ignorance of what was to be found in a very ordinary despicable stone, I mean the mineral of iron. And whatever we think of our parts or improvements in this part of the world, where knowledge and plenty seem to vie with each other; yet to any one, that will seriously reflect on it, I suppose it will appear past doubt, that were the use of iron lost among us, we should in a few ages be unavoidably reduced to the wants and ignorance of the ancient savage Americans, whose natural endowments and provisions come no way short of those of the most flourishing and polite nations. So that he who first made known the use of that contemptible mineral, may be truly styled the father of arts, and author of plenty.

But must beware of hypotheses and wrong principles.

§. 12. I would not therefore be thought to disesteem, or dissuade the study of nature. I readily agree the contemplation of his works gives us occasion to admire, revere, and glorify their author: and, if rightly directed, may be of greater benefit to mankind, than the monuments of exemplary charity, that have at so great charge been raised by the founders of hospitals and almshouses. He that first invented printing, discovered the use of the compass, or made public the virtue and right use of kin kina, did more for the propagation of knowledge, for the supply and increase of useful commodities, and saved more from the grave, than those who built colleges, work-houses, and hospitals. All that I would say, is, that we should not be too forwardly possessed with the opinion, or expectation of knowledge, where it is not to be had; or by ways that will not attain to it: that we should not take doubtful systems for complete sciences, nor unintelligible notions for scientifical demonstrations. In the knowledge of bodies, we must

be content to glean what we can from particular experiments: since we cannot, from a discovery of their real essences, grasp at a time whole sheaves, and in bundles comprehend the nature and properties of whole species together. Where our inquiry is concerning co-existence, or repugnancy to co-exist, which by contemplation of our ideas we cannot discover; there experience, observation, and natural history must give us by our senses, and by retail, an insight into corporeal substances. The knowledge of bodies we must get by our senses, warily employed in taking notice of their qualities and operations on one another: and what we hope to know of separate spirits in this world, we must, I think, expect only from revelation. He that shall consider how little general maxims, precarious principles, and hypotheses laid down at pleasure, have promoted true knowledge, or helped to satisfy the inquiries of rational men after real improvements; how little, I say, the setting out at that end has, for many ages together, advanced men's progress towards the knowledge of natural philosophy; will think we have reason to thank those, who in this latter age have taken another course, and have trod out to us, though not an easier way to learned ignorance, yet a surer way to profitable knowledge.

The true use of hypotheses.

§. 13. Not that we may not, to explain any phænomena of nature, make use of any probable hypothesis whatsoever: hypotheses, if they are well made, are at least great helps to the memory, and often direct us to new discoveries. But my meaning is, that we should not take up any one too hastily (which the mind, that would always penetrate into the causes of things, and have principles to rest on, is very apt to do) till we have very well examined particulars, and made several experiments, in that thing which we would explain by our hypothesis, and see whether it will agree to them all; whether our principles will carry us quite through, and not be as inconsistent with one phænomenon of nature, as they seem to accommodate and explain another. And at least that we take care, that the name of principles deceive us not, nor impose on us, by making us receive

that for an unquestionable truth, which is really at best but a very doubtful conjecture, such as are most (I had almost said all) of the hypotheses in natural philosophy.

Clear and distinct ideas with settled names, and the finding of those which show their agreement or disagreement, are the ways to enlarge our knowledge.

§. 14. But whether natural philosophy be capable of certainty or no, the ways to enlarge our knowledge, as far as we are capable, seem to me, in short, to be these two:

First, the first is to get and settle in our minds determined ideas of those things, whereof we have general or specific names; at least so many of them as we would consider and improve our knowledge in, or reason about. And if they be specific ideas of substances, we should endeavour also to make them as complete as we can, whereby I mean, that we should put together as many simple ideas, as, being constantly observed to co-exist, may perfectly determine the species: and each of those simple ideas, which are the ingredients of our complex ones, should be clear and distinct in our minds. For it being evident, that our knowledge cannot exceed our ideas; as far as they are either imperfect, confused, or obscure, we cannot expect to have certain, perfect, or clear knowledge.

Secondly, the other is the art of finding out those intermediate ideas, which may show us the agreement or repugnancy of other ideas, which cannot be immediately compared.

Mathematics, an instance of it.

§. 15. That these two (and not the relying on maxims, and drawing consequences from some general propositions) are the right methods of improving our knowledge in the ideas of other modes besides those of quantity, the consideration of mathematical knowledge will easily inform us. Where first we shall find, that he that has not a perfect and clear idea of those angles, or figures of which he desires to know any thing, is utterly thereby incapable of any knowledge about them. Suppose but a man not to have a perfect exact idea of a right angle, a scalenum, or trapezium; and there is nothing more certain, than that

he will in vain seek any demonstration about them. Farther, it is evident, that it was not the influence of those maxims, which are taken for principles in mathematics, that hath led the masters of that science into those wonderful discoveries they have made. Let a man of good parts know all the maxims generally made use of in mathematics ever so perfectly, and contemplate their extent and consequences as much as he pleases, he will by their assistance, I suppose, scarce ever come to know that the square of the hypothenuse in a right-angled triangle is equal to the squares of the two other sides. The knowledge, that the whole is equal to all its parts, and if you take equals from equals, the remainder will be equal, &c. helped him not, I presume, to this demonstration: and a man may, I think, pore long enough on those axioms, without ever seeing one jot the more of mathematical truths. They have been discovered by the thoughts otherwise applied: the mind had other objects, other views before it, far different from those maxims, when it first got the knowledge of such truths in mathematics, which men well enough acquainted with those received axioms, but ignorant of their method who first made these demonstrations, can never sufficiently admire. And who knows what methods, to enlarge our knowledge in other parts of science, may hereafter be invented, answering that of algebra in mathematics, which so readily finds out the ideas of quantities to measure others by; whose equality or proportion we could otherwise very hardly, or, perhaps, never come to know?

CHAP. XIII.

Some farther Considerations concerning our Knowledge.

§. 1. OUR knowledge, as in other things, so in this, has so great a conformity with our sight, that it is neither wholly necessary, nor wholly voluntary. If our know- Our knowledge partly necessary, partly voluntary.

ledge were altogether necessary, all men's knowledge would not only be alike, but every man would know all that is knowable: and if it were wholly voluntary, some men so little regard or value it, that they would have extreme little, or none at all. Men that have senses cannot choose but receive some ideas by them; and if they have memory, they cannot but retain some of them; and if they have any distinguishing faculty, cannot but perceive the agreement or disagreement of some of them one with another: as he that has eyes, if he will open them by day, cannot but see some objects, and perceive a difference in them. But though a man with his eyes open in the light, cannot but see; yet there be certain objects, which he may choose whether he will turn his eyes to; there may be in his reach a book containing pictures and discourses, capable to delight or instruct him, which yet he may never have the will to open, never take the pains to look into.

The application voluntary; but we know as things are, not as we please.

§. 2. There is also another thing in a man's power, and that is, though he turns his eyes sometimes towards an object, yet he may choose whether he will curiously survey it, and with an intent application endeavour to observe accurately all that is visible in it. But yet what he does see, he cannot see otherwise than he does. It depends not on his will to see that black which appears yellow; nor to persuade himself, that what actually scalds him, feels cold. The earth will not appear painted with flowers, nor the fields covered with verdure, whenever he has a mind to it: in the cold winter he cannot help seeing it white and hoary, if he will look abroad. Just thus is it with our understanding: all that is voluntary in our knowledge, is the employing or withholding any of our faculties, from this or that sort of objects, and a more or less accurate survey of them: but they being employed, our will hath no power to determine the knowledge of the mind one way or other; that is done only by the objects themselves, as far as they are clearly discovered. And therefore, as far as men's senses are conversant about external objects, the mind cannot but receive those

ideas which are presented by them, and be informed of the existence of things without: and so far as men's thoughts converse with their own determined ideas, they cannot but, in some measure, observe the agreement or disagreement that is to be found amongst some of them, which is so far knowledge: and if they have names for those ideas which they have thus considered, they must needs be assured of the truth of those propositions, which express that agreement or disagreement they perceive in them, and be undoubtedly convinced of those truths. For what a man sees, he cannot but see; and what he perceives, he cannot but know that he perceives.

§. 3. Thus he that has got the ideas of numbers, and hath taken the pains to compare one, two, and three to six, cannot choose but know that they are equal: he that hath got the idea of a triangle, and found the ways to measure its angles, and their magnitudes, is certain that its three angles are equal to two right ones; and can as little doubt of that, as of this truth, "that it is impossible for "the same thing to be, and not to be." Instance, in numbers.

He also that hath the idea of an intelligent, but frail and weak being, made by and depending on another, who is eternal, omnipotent, perfectly wise and good, will as certainly know that man is to honour, fear, and obey God, as that the sun shines when he sees it. For if he hath but the ideas of two such beings in his mind, and will turn his thoughts that way, and consider them, he will as certainly find, that the inferior, finite and dependent, is under an obligation to obey the supreme and infinite, as he is certain to find, that three, four, and seven are less than fifteen, if he will consider and compute those numbers; nor can he be surer in a clear morning that the sun is risen, if he will but open his eyes, and turn them that way. But yet these truths, being ever so certain, ever so clear, he may be ignorant of either, or all of them, who will never take the pains to employ his faculties, as he should, to inform himself about them. In natural religion.

CHAP. XIV.

Of Judgment.

Our knowledge being short, we want something else.

§. 1. THE understanding faculties being given to man, not barely for speculation, but also for the conduct of his life, man would be at a great loss, if he had nothing to direct him but what has the certainty of true knowledge. For that being very short and scanty, as we have seen, he would be often utterly in the dark, and in most of the actions of his life, perfectly at a stand, had he nothing to guide him in the absence of clear and certain knowledge. He that will not eat, till he has demonstration that it will nourish him; he that will not stir, till he infallibly knows the business he goes about will succeed; will have little else to do, but to sit still and perish.

What use to be made of this twilight state.

§. 2. Therefore as God has set some things in broad day-light; as he has given us some certain knowledge, though limited to a few things in comparison, probably, as a taste of what intellectual creatures are capable of, to excite in us a desire and endeavour after a better state: so in the greatest part of our concernments he has afforded us only the twilight, as I may so say, of probability; suitable, I presume, to that state of mediocrity and probationership, he has been pleased to place us in here; wherein, to check our over-confidence and presumption, we might by every day's experience be made sensible of our short-sightedness and liableness to errour; the sense whereof might be a constant admonition to us, to spend the days of this our pilgrimage with industry and care, in the search and following of that way, which might lead us to a state of greater perfection: it being highly rational to think, even were revelation silent in the case, that as men employ those talents God has given them here, they shall accordingly receive their rewards at the close of the day, when their sun shall set, and night shall put an end to their labours.

§. 3. The faculty which God has given man to supply the want of clear and certain knowledge, in cases where that cannot be had, is judgment: whereby the mind takes its ideas to agree or disagree; or which is the same, any proposition to be true or false, without perceiving a demonstrative evidence in the proofs. The mind sometimes exercises this judgment out of necessity, where demonstrative proofs and certain knowledge are not to be had; and sometimes out of laziness, unskilfulness, or haste, even where demonstrative and certain proofs are to be had. Men often stay not warily to examine the agreement or disagreement of two ideas, which they are desirous or concerned to know; but either incapable of such attention as is requisite in a long train of gradations, or impatient of delay, lightly cast their eyes on, or wholly pass by the proofs; and so without making out the demonstration, determine of the agreement or disagreement of two ideas, as it were by a view of them as they are at a distance, and take it to be the one or the other, as seems most likely to them upon such a loose survey. This faculty of the mind, when it is exercised immediately about things, is called judgment; when about truths delivered in words, is most commonly called assent or dissent: which being the most usual way, wherein the mind has occasion to employ this faculty, I shall under these terms treat of it, as least liable in our language to equivocation.

Judgment supplies the want of knowledge.

§. 4. Thus the mind has two faculties, conversant about truth and falsehood.

First, knowledge, whereby it certainly perceives, and is undoubtedly satisfied of the agreement or disagreement of any ideas.

Judgment is the presuming things to be so, without perceiving it.

Secondly, judgment, which is the putting ideas together, or separating them from one another in the mind, when their certain agreement or disagreement is not perceived, but presumed to be so; which is, as the word imports, taken to be so before it certainly appears. And if it so unites, or separates them, as in reality things are, it is right judgment.

CHAP. XV.

Of Probability.

Probability is the appearance of agreement upon fallible proofs.

§. 1. AS demonstration is the showing the agreement or disagreement of two ideas, by the intervention of one or more proofs, which have a constant, immutable, and visible connexion one with another; so probability is nothing but the appearance of such an agreement or disagreement, by the intervention of proofs, whose connexion is not constant and immutable, or at least is not perceived to be so, but is, or appears for the most part to be so, and is enough to induce the mind to judge the proposition to be true or false, rather than the contrary. For example: in the demonstration of it a man perceives the certain immutable connexion there is of equality between the three angles of a triangle, and those intermediate ones which are made use of to show their equality to two right ones; and so by an intuitive knowledge of the agreement or disagreement of the intermediate ideas in each step of the progress, the whole series is continued with an evidence, which clearly shows the agreement or disagreement of those three angles in equality to two right ones: and thus he has certain knowledge that it is so. But another man, who never took the pains to observe the demonstration, hearing a mathematician, a man of credit, affirm the three angles of a triangle to be equal to two right ones, assents to it, i. e. receives it for true. In which case the foundation of his assent is the probability of the thing, the proof being such as for the most part carries truth with it: the man, on whose testimony he receives it, not being wont to affirm any thing contrary to, or besides his knowledge, especially in matters of this kind. So that that which causes his assent to this proposition, that the three angles of a triangle are equal to two right ones, that which makes him take these ideas to agree, without knowing

them to do so, is the wonted veracity of the speaker in other cases, or his supposed veracity in this.

§. 2. Our knowledge, as has been shown, being very narrow, and we not happy enough to find certain truth in every thing which we have occasion to consider; most of the propositions we think, reason, discourse, nay act upon, are such, as we cannot have undoubted knowledge of their truth; yet some of them border so near upon certainty, that we make no doubt at all about them; but assent to them as firmly, and act, according to that assent, as resolutely, as if they were infallibly demonstrated, and that our knowledge of them was perfect and certain. But there being degrees herein from the very neighbourhood of certainty and demonstration, quite down to improbability and unlikeness, even to the confines of impossibility; and also degrees of assent from full assurance and confidence, quite down to conjecture, doubt, and distrust: I shall come now, (having, as I think, found out the bounds of human knowledge and certainty) in the next place, to consider the several degrees and grounds of probability, and assent or faith.

It is to supply the want of knowledge.

§. 3. Probability is likeliness to be true, the very notation of the word signifying such a proposition, for which there be arguments or proofs, to make it pass or be received for true. The entertainment the mind gives this sort of propositions, is called belief, assent, or opinion, which is the admitting or receiving any proposition for true, upon arguments or proofs that are found to persuade us to receive it as true, without certain knowledge that it is so. And herein lies the difference between probability and certainty, faith and knowledge, that in all the parts of knowledge there is intuition; each immediate idea, each step has its visible and certain connexion; in belief, not so. That which makes me believe is something extraneous to the thing I believe; something not evidently joined on both sides to, and so not manifestly showing the agreement or disagreement of those ideas that are under consideration.

Being that which makes us presume things to be true before we know them to be so.

The grounds of probability are two; conformity with our own experience, or the testimony of others experience.

§. 4. Probability then, being to supply the defect of our knowledge, and to guide us where that fails, is always conversant about propositions, whereof we have no certainty, but only some inducements to receive them for true. The grounds of it are, in short, these two following.

First, the conformity of any thing with our own knowledge, observation, and experience.

Secondly, the testimony of others, vouching their observation and experience. In the testimony of others, is to be considered, 1. The number. 2. The integrity. 3. The skill of the witnesses. 4. The design of the author, where it is a testimony out of a book cited. 5. The consistency of the parts, and circumstances of the relation. 6. Contrary testimonies.

In this all the arguments pro and con ought to be examined before we come to a judgment.

§. 5. Probability wanting that intuitive evidence, which infallibly determines the understanding, and produces certain knowledge, the mind, if it would proceed rationally, ought to examine all the grounds of probability, and see how they make more or less for or against any proposition, before it assents to, or dissents from it; and upon a due balancing the whole, reject, or receive it, with a more or less firm assent, proportionally to the preponderancy of the greater grounds of probability on one side or the other. For example:

If I myself see a man walk on the ice, it is past probability; it is knowledge; but if another tells me he saw a man in England, in the midst of a sharp winter, walk upon water hardened with cold; this has so great conformity with what is usually observed to happen, that I am disposed by the nature of the thing itself to assent to it, unless some manifest suspicion attend the relation of that matter of fact. But if the same thing be told to one born between the tropics, who never saw nor heard of any such thing before, there the whole probability relies on testimony: and as the relators are more in number, and of more credit, and have no interest to

speak contrary to the truth; so that matter of fact is like to find more or less belief. Though to a man whose experience has always been quite contrary, and who has never heard of any thing like it, the most untainted credit of a witness will scarce be able to find belief. As it happened to a Dutch ambassador, who entertaining the king of Siam with the particularities of Holland, which he was inquisitive after, amongst other things told him, that the water in his country would sometimes, in cold weather, be so hard, that men walked upon it, and that it would bear an elephant if he were there. To which the king replied, "Hitherto I have "believed the strange things you have told me, because "I look upon you as a sober fairman, but now I am "sure you lye."

They being capable of great variety.

§. 6. Upon these grounds depends the probability of any proposition: and as the conformity of our knowledge, as the certainty of observations, as the frequency and constancy of experience, and the number and credibility of testimonies, do more or less agree or disagree with it, so is any proposition in itself more or less probable. There is another, I confess, which though by itself it be no true ground of probability, yet is often made use of for one, by which men most commonly regulate their assent, and upon which they pin their faith more than any thing else, and that is the opinion of others: though there cannot be a more dangerous thing to rely on, nor more likely to mislead one; since there is much more falsehood and error among men, than truth and knowledge. And if the opinions and persuasions of others, whom we know and think well of, be a ground of assent, men have reason to be Heathens in Japan, Mahometans in Turky, Papists in Spain, Protestants in England, and Lutherans in Sweden. But of this wrong ground of assent I shall have occasion to speak more at large in another place.

CHAP. XVI.

Of the Degrees of Assent.

Our assent ought to be regulated by the grounds of probability.

§. 1. THE grounds of probability we have laid down in the foregoing chapter; as they are the foundations on which our assent is built, so are they also the measure whereby its several degrees are, or ought to be regulated: only we are to take notice, that whatever grounds of probability there may be, they yet operate no farther on the mind, which searches after truth, and endeavours to judge right, than they appear; at least in the first judgment or search that the mind makes. I confess, in the opinions men have, and firmly stick to, in the world, their assent is not always from an actual view of the reasons that at first prevailed with them: it being in many cases almost impossible, and in most very hard, even for those who have very admirable memories, to retain all the proofs, which upon a due examination made them embrace that side of the question. It suffices that they have once with care and fairness sifted the matter as far as they could; and that they have searched into all the particulars, that they could imagine to give any light to the question: and with the best of their skill cast up the account upon the whole evidence: and thus having once found on which side the probability appeared to them, after as full and exact an enquiry as they can make, they lay up the conclusion in their memories, as a truth they have discovered; and for the future they remain satisfied with the testimony of their memories, that this is the opinion, that by the proofs they have once seen of it deserves such a degree of their assent as they afford it.

These cannot always be actually in view, and then we must

§. 2. This is all that the greatest part of men are capable of doing, in regulating their opinions and judgments; unless a man will exact of them, either to retain distinctly in their memories all the proofs concerning

any probable truth, and that too in the same order, and regular deduction of consequences in which they have formerly placed or seen them; which sometimes is enough to fill a large volume on one single question: or else they must require a man, for every opinion that he embraces, every day to examine the proofs: both which are impossible. It is unavoidable therefore that the memory be relied on in the case, and that men be persuaded of several opinions, whereof the proofs are not actually in their thoughts; nay, which perhaps they are not able actually to recal. Without this the greatest part of men must be either very sceptics, or change every moment, and yield themselves up to whoever, having lately studied the question, offers them arguments; which, for want of memory, they are not able presently to answer.

content ourselves with the remembrance that we once saw ground for such a degree of assent.

§. 3. I cannot but own, that men's sticking to their past judgment, and adhering firmly to conclusions formerly made, is often the cause of great obstinacy in errour and mistake. But the fault is not that they rely on their memories for what they have before well judged; but because they judged before they had well examined. May we not find a great number (not to say the greatest part) of men that think they have formed right judgments of several matters; and that for no other reason, but because they never thought otherwise? who imagine themselves to have judged right, only because they never questioned, never examined their own opinions? Which is indeed to think they judged right, because they never judged at all: and yet these of all men hold their opinions with the greatest stiffness; those being generally the most fierce and firm in their tenets, who have least examined them. What we once know, we are certain is so: and we may be secure, that there are no latent proofs undiscovered, which may overturn our knowledge, or bring it in doubt. But, in matters of probability, it is not in every case we can be sure that we have all the particulars before us, that any way concern the question; and that

The ill consequence of this, if our former judgments were not rightly made.

there is no evidence behind, and yet unseen, which may cast the probability on the other side, and outweigh all that at present seems to preponderate with us. Who almost is there that hath the leisure, patience, and means, to collect together all the proofs concerning most of the opinions he has, so as safely to conclude that he hath a clear and full view; and that there is no more to be alleged for his better information? And yet we are forced to determine ourselves on the one side or other. The conduct of our lives, and the management of our great concerns, will not bear delay: for those depend, for the most part, on the determination of our judgment in points wherein we are not capable of certain and demonstrative knowledge, and wherein it is necessary for us to embrace the one side or the other.

The right use of it, is mutual charity and forbearance.

§. 4. Since therefore it is unavoidable to the greatest part of men, if not all, to have several opinions, without certain and indubitable proofs of their truth; and it carries too great an imputation of ignorance, lightness, or folly, for men to quit and renounce their former tenets presently upon the offer of an argument, which they cannot immediately answer, and show the insufficiency of: it would methinks become all men to maintain peace, and the common offices of humanity and friendship, in the diversity of opinions: since we cannot reasonably expect, that any one should readily and obsequiously quit his own opinion, and embrace ours with a blind resignation to an authority, which the understanding of man acknowledges not. For however it may often mistake, it can own no other guide but reason, nor blindly submit to the will and dictates of another. If he, you would bring over to your sentiments, be one that examines before he assents, you must give him leave at his leisure to go over the account again, and, recalling what is out of his mind, examine all the particulars, to see on which side the advantage lies: and if he will not think our arguments of weight enough to engage him a-new in so much pains, it is but what we often do ourselves in the like case; and we should take it amiss if others should prescribe to us what points we

should study. And if he be one who takes his opinions upon trust, how can we imagine that he should renounce those tenets which time and custom have so settled in his mind, that he thinks them self-evident, and of an unquestionable certainty; or which he takes to be impressions he has received from God himself, or from men sent by him? How can we expect, I say, that opinions thus settled should be given up to the arguments or authority of a stranger, or adversary? especially if there be any suspicion of interest or design, as there never fails to be, where men find themselves ill treated? We should do well to commiserate our mutual ignorance, and endeavour to remove it in all the gentle and fair ways of information; and not instantly treat others ill, as obstinate and perverse, because they will not renounce their own and receive our opinions, or at least those we would force upon them, when it is more than probable, that we are no less obstinate in not embracing some of theirs. For where is the man that has incontestable evidence of the truth of all that he holds, or of the falsehood of all he condemns; or can say that he has examined to the bottom all his own, or other men's opinions? The necessity of believing, without knowledge, nay often upon very slight grounds, in this fleeting state of action and blindness we are in, should make us more busy and careful to inform ourselves, than constrain others. At least those, who have not thoroughly examined to the bottom all their own tenets, must confess they are unfit to prescribe to others; and are unreasonable in imposing that as truth on other men's belief, which they themselves have not searched into, nor weighed the arguments of probability, on which they should receive or reject it. Those who have fairly and truly examined, and are thereby got past doubt in all the doctrines they profess and govern themselves by, would have a juster pretence to require others to follow them: but these are so few in number, and find so little reason to be magisterial in their opinions, that nothing insolent and imperious is to be expected from them: and there is reason to think, that if men were better instructed themselves, they would be less imposing on others.

Probability is either of matter of fact or speculation.

§. 5. But to return to the grounds of assent, and the several degrees of it, we are to take notice, that the propositions we receive upon inducements of probability, are of two sorts; either concerning some particular existence, or, as it is usually termed, matter of fact, which falling under observation, is capable of human testimony; or else concerning things, which being beyond the discovery of our senses, are not capable of any such testimony.

The concurrent experience of all other men with ours produces assurance approaching to knowledge.

§. 6. Concerning the first of these, viz. particular matter of fact.

First, where any particular thing, consonant to the constant observation of ourselves and others in the like case, comes attested by the concurrent reports of all that mention it, we receive it as easily, and build as firmly upon it, as if it were certain knowledge: and we reason and act thereupon with as little doubt, as if it were perfect demonstration. Thus, if all Englishmen who have occasion to mention it, should affirm that it froze in England the last winter, or that there were swallows seen there in the summer; I think a man could almost as little doubt of it, as that seven and four are eleven. The first therefore, and highest degree of probability, is, when the general consent of all men, in all ages, as far as it can be known, concurs with a man's constant and never failing experience in like cases, to confirm the truth of any particular matter of fact attested by fair witnesses; such are all the stated constitutions and properties of bodies, and the regular proceedings of causes and effects in the ordinary course of nature. This we call an argument from the nature of things themselves. For what our own and other men's constant observation has found always to be after the same manner, that we with reason conclude to be the effect of steady and regular causes, though they come not within the reach of our knowledge. Thus, that fire warmed a man, made lead fluid, and changed the colour or consistency in wood or charcoal; that iron sunk in water, and swam in quicksilver: these and the

like propositions about particular facts, being agreeable to our constant experience, as often as we have to do with these matters: and being generally spoke of (when mentioned by others) as things found constantly to be so, and therefore not so much as controverted by any body; we are put past doubt, that a relation affirming any such thing to have been, or any predication that it will happen again in the same manner, is very true. These probabilities rise so near to a certainty, that they govern our thoughts as absolutely, and influence all our actions as fully, as the most evident demonstration; and in what concerns us, we make little or no difference between them and certain knowledge. Our belief, thus grounded, rises to assurance.

Unquestionable testimony and experience for the most part produce confidence.

§. 7. Secondly, the next degree of probability is, when I find by my own experience, and the agreement of all others that mention it, a thing to be, for the most part, so; and that the particular instance of it is attested by many and undoubted witnesses, v. g. history giving us such an account of men in all ages; and my own experience, as far as I had an opportunity to observe, confirming it, that most men prefer their private advantage to the public: if all historians that write of Tiberius say that Tiberius did so, it is extremely probable. And in this case, our assent has a sufficient foundation to raise itself to a degree which we may call confidence.

Fair testimony, and the nature of the thing indifferent, produce also confident belief.

§. 8. Thirdly, in things that happen indifferently, as that a bird should fly this or that way; that it should thunder on a man's right or left hand, &c. when any particular matter of fact is vouched by the concurrent testimony of unsuspected witnesses, there our assent is also unavoidable. Thus, that there is such a city in Italy as Rome; that, about one thousand seven hundred years ago, there lived in it a man, called Julius Cæsar; that he was a general, and that he won a battle against another, called Pompey: this, though in the nature of the thing there be nothing for nor against it, yet being related by historians of

credit, and contradicted by no one writer, a man cannot avoid believing it, and can as little doubt of it, as he does of the being and actions of his own acquaintance, whereof he himself is a witness.

Experiences and testimonies clashing infinitely vary the degrees of probability.

§. 9. Thus far the matter goes easy enough. Probability upon such grounds carries so much evidence with it, that it naturally determines the judgment, and leaves us as little liberty to believe, or disbelieve, as a demonstration does, whether we will know, or be ignorant. The difficulty is, when testimonies contradict common experience, and the reports of history and witnesses clash with the ordinary course of nature, or with one another; there it is, where diligence, attention, and exactness are required, to form a right judgment, and to proportion the assent to the different evidence and probability of the thing; which rises and falls, according as those two foundations of credibility, viz. common observation in like cases, and particular testimonies in that particular instance, favour or contradict it. These are liable to so great variety of contrary observations, circumstances, reports, different qualifications, tempers, designs, oversights, &c. of the reporters, that it is impossible to reduce to precise rules the various degrees wherein men give their assent. This only may be said in general, that as the arguments and proofs pro and con, upon due examination, nicely weighing every particular circumstance, shall to any one appear, upon the whole matter, in a greater or less degree, to preponderate on either side; so they are fitted to produce in the mind such different entertainment, as we call belief, conjecture, guess, doubt, wavering, distrust, disbelief, &c.

Traditional testimonies the farther removed, the less their proof.

§. 10. This is what concerns assent in matters wherein testimony is made use of: concerning which, I think, it may not be amiss to take notice of a rule observed in the law of England; which is, that though the attested copy of a record be good proof, yet the copy of a copy ever so well attested, and by ever so credible witnesses, will not be admitted as a proof in

judicature. This is so generally approved as reasonable, and suited to the wisdom and caution to be used in our inquiry after material truths, that I never yet heard of any one that blamed it. This practice, if it be allowable in the decisions of right and wrong, carries this observation along with it, viz. that any testimony, the farther off it is from the original truth, the less force and proof it has. The being and existence of the thing itself is what I call the original truth. A credible man vouching his knowledge of it is a good proof: but if another equally credible do witness it from his report, the testimony is weaker; and a third that attests the hear-say of an hear-say, is yet less considerable. So that in traditional truths, each remove weakens the force of the proof; and the more hands the tradition has successively passed through, the less strength and evidence does it receive from them. This I thought necessary to be taken notice of, because I find amongst some men the quite contrary commonly practised, who look on opinions to gain force by growing older; and what a thousand years since would not, to a rational man, contemporary with the first voucher, have appeared at all probable, is now urged as certain beyond all question, only because several have since, from him, said it one after another. Upon this ground, propositions, evidently false or doubtful enough in their first beginning, come by an inverted rule of probability to pass for authentic truths; and those which found or deserved little credit from the mouths of their first authors, are thought to grow venerable by age, and are urged as undeniable.

Yet history is of great use.

§. 11. I would not be thought here to lessen the credit and use of history: it is all the light we have in many cases, and we receive from it a great part of the useful truths we have with a convincing evidence. I think nothing more valuable than the records of antiquity: I wish we had more of them, and more uncorrupted. But this truth itself forces me to say, that no probability can arise higher than its first original. What has no other evidence than the single testimony of one only witness, must stand or fall by his only testimony, whether good,

bad or indifferent; and though cited afterwards by hundreds of others, one after another, is so far from receiving any strength thereby, that it is only the weaker. Passion, interest, inadvertency, mistake of his meaning, and a thousand odd reasons, or capricio's, men's minds are acted by (impossible to be discovered) may make one man quote another man's words or meaning wrong. He that has but ever so little examined the citations of writers, cannot doubt how little credit the quotations deserve, where the originals are wanting; and consequently how much less quotations of quotations can be relied on. This is certain, that what in one age was affirmed upon slight grounds, can never after come to be more valid in future ages, by being often repeated. But the farther still it is from the original, the less valid it is, and has always less force in the mouth or writing of him that last made use of it, than in his from whom he received it.

In things which sense cannot discover, analogy is the great rule of probability.

§. 12. The probabilities we have hitherto mentioned are only such as concern matter of fact, and such things as are capable of observation and testimony. There remains that other sort, concerning which men entertain opinions with variety of assent, though the things be such, that, falling not under the reach of our senses, they are not capable of testimony. Such are, 1. The existence, nature, and operations of finite immaterial beings without us; as spirits, angels, devils, &c. or the existence of material beings; which either for their smallness in themselves, or remoteness from us, our senses cannot take notice of; as whether there be any plants, animals, and intelligent inhabitants in the planets, and other mansions of the vast universe. 2. Concerning the manner of operation in most parts of the works of nature: wherein though we see the sensible effects, yet their causes are unknown, and we perceive not the ways and manner how they are produced. We see animals are generated, nourished, and move; the loadstone draws iron; and the parts of a candle, successively melting, turn into flame, and give us both light and heat. These and the like effects we

see and know: but the causes that operate, and the manner they are produced in, we can only guess and probably conjecture. For these and the like, coming not within the scrutiny of human senses, cannot be examined by them, or be attested by any body; and therefore can appear more or less probable, only as they more or less agree to truths that are established in our minds, and as they hold proportion to other parts of our knowledge and observation. Analogy in these matters is the only help we have, and it is from that alone we draw all our grounds of probability. Thus observing that the bare rubbing of two bodies violently one upon another produces heat, and very often fire itself, we have reason to think, that what we call heat and fire consists in a violent agitation of the imperceptible minute parts of the burning matter: observing likewise that the different refractions of pellucid bodies produce in our eyes the different appearances of several colours; and also that the different ranging and laying the superficial parts of several bodies, as of velvet, watered silk, &c. does the like, we think it probable that the colour and shining of bodies is in them nothing but the different arrangement and refraction of their minute and insensible parts. Thus finding in all parts of the creation, that fall under human observation, that there is a gradual connexion of one with another, without any great or discernible gaps between, in all that great variety of things we see in the world, which are so closely linked together, that in the several ranks of beings, it is not easy to discover the bounds betwixt them; we have reason to be persuaded, that by such gentle steps things ascend upwards in degrees of perfection. It is a hard matter to say where sensible and rational begin, and where insensible and irrational end: and who is there quick-sighted enough to determine precisely, which is the lowest species of living things, and which the first of those which have no life? Things, as far as we can observe, lessen and augment, as the quantity does in a regular cone; where though there be a manifest odds betwixt the bigness of the diameter at a remote distance, yet the difference between the upper and under, where

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they touch one another, is hardly discernible. The difference is exceeding great between some men, and some animals; but if we will compare the understanding and abilities of some men and some brutes, we shall find so little difference, that it will be hard to say, that that of the man is either clearer or larger. Observing, I say, such gradual and gentle descents downwards in those parts of the creation that are beneath man, the rule of analogy may make it probable, that it is so also in things above us and our observation; and that there are several ranks of intelligent beings, excelling us in several degrees of perfection, ascending upwards towards the infinite perfection of the Creator, by gentle steps and differences, that are every one at no great distance from the next to it. This sort of probability, which is the best conduct of rational experiments, and the rise of hypothesis, has also its use and influence; and a wary reasoning from analogy leads us often into the discovery of truths and useful productions, which would otherwise lie concealed.

One case where contrary experience lessens not the testimony.

§. 13. Though the common experience and the ordinary course of things have justly a mighty influence on the minds of men, to make them give or refuse credit to any thing proposed to their belief; yet there is one case, wherein the strangeness of the fact lessens not the assent to a fair testimony given of it. For where such supernatural events are suitable to ends aimed at by him, who has the power to change the course of nature, there, under such circumstances, they may be the fitter to procure belief, by how much the more they are beyond, or contrary to ordinary observation. This is the proper case of miracles, which well attested do not only find credit themselves, but give it also to other truths, which need such confirmation.

The bare testimony of revelation is the highest certainty.

§ 14. Besides those we have hitherto mentioned, there is one sort of propositions that challenge the highest degree of our assent upon bare testimony, whether the thing proposed agree or disagree with common experience, and the ordinary course of things, or

no. The reason whereof is, because the testimony is of such an one, as cannot deceive, nor be deceived, and that is of God himself. This carries with it an assurance beyond doubt, evidence beyond exception. This is called by a peculiar name, revelation; and our assent to it, faith: which as absolutely determines our minds, and as perfectly excludes all wavering, as our knowledge itself; and we may as well doubt of our own being, as we can, whether any revelation from God be true. So that faith is a settled and sure principle of assent and assurance, and leaves no manner of room for doubt or hesitation. Only we must be sure, that it be a divine revelation, and that we understand it right: else we shall expose ourselves to all the extravagancy of enthusiasm, and all the errour of wrong principles, if we have faith and assurance in what is not divine revelation. And therefore in those cases, our assent can be rationally no higher than the evidence of its being a revelation, and that this is the meaning of the expressions it is delivered in. If the evidence of its being a revelation, or that this is its true sense, be only on probable proofs; our assent can reach no higher than an assurance or diffidence, arising from the more or less apparent probability of the proofs. But of faith, and the precedency it ought to have before other arguments of persuasion, I shall speak more hereafter, where I treat of it, as it is ordinarily placed, in contradistinction to reason; though in truth it be nothing else but an assent founded on the highest reason.

CHAP. XVII.

Of Reason.

§. 1. THE word reason in the English language has different significations: sometimes it is taken for true and clear principles; sometimes for clear and fair deductions from those principles; and sometimes for

Various significations of the word reason.

the cause, and particularly the final cause. But the consideration I shall have of it here, is in a signification different from all these: and that is, as it stands for a faculty in man, that faculty whereby man is supposed to be distinguished from beasts, and wherein it is evident he much surpasses them.

Wherein reasoning consists.

§. 2. If general knowledge, as has been shown, consists in a perception of the agreement or disagreement of our own ideas; and the knowledge of the existence of all things without us (except only of a God, whose existence every man may certainly know and demonstrate to himself from his own existence) be had only by our senses: what room is there for the exercise of any other faculty, but outward sense and inward perception? What need is there of reason? Very much; both for the enlargement of our knowledge, and regulating our assent: for it hath to do both in knowledge and opinion, and is necessary and assisting to all our other intellectual faculties, and indeed contains two of them, viz. sagacity and illation. By the one, it finds out; and by the other, it so orders the intermediate ideas, as to discover what connexion there is in each link of the chain, whereby the extremes are held together; and thereby, as it were, to draw into view the truth sought for, which is that which we call illation or inference, and consists in nothing but the perception of the connexion there is between the ideas, in each step of the deduction, whereby the mind comes to see either the certain agreement or disagreement of any two ideas, as in demonstration, in which it arrives at knowledge; or their probable connexion, on which it gives or withholds its assent, as in opinion. Sense and intuition reach but a very little way. The greatest part of our knowledge depends upon deductions and intermediate ideas: and in those cases, where we are fain to substitute assent instead of knowledge, and take propositions for true, without being certain they are so, we have need to find out, examine, and compare the grounds of their probability. In both these cases, the faculty which finds out the means, and rightly applies them to discover certainty in the one, and probability in the

other, is that which we call reason. For as reason perceives the necessary and indubitable connexion of all the ideas or proofs one to another, in each step of any demonstration that produces knowledge; so it likewise perceives the probable connexion of all the ideas or proofs one to another, in every step of a discourse, to which it will think assent due. This is the lowest degree of that which can be truly called reason. For where the mind does not perceive this probable connexion, where it does not discern whether there be any such connexion or no; there men's opinions are not the product of judgment, or the consequence of reason, but the effects of chance and hazard, of a mind floating at all adventures, without choice and without direction.

Its four parts.

§. 3. So that we may in reason consider these four degrees; the first and highest is the discovering and finding out of truths; the second, the regular and methodical disposition of them, and laying them in a clear and fit order, to make their connexion and force be plainly and easily perceived: the third is the perceiving their connexion; and the fourth, a making a right conclusion. These several degrees may be observed in any mathematical demonstration; it being one thing to perceive the connexion of each part, as the demonstration is made by another; another, to perceive the dependence of the conclusion on all the parts; a third, to make out a demonstration clearly and neatly one's self; and something different from all these, to have first found out these intermediate ideas or proofs by which it is made.

Syllogism not the great instrument of reason.

§. 4. There is one thing more, which I shall desire to be considered concerning reason; and that is, whether syllogism, as is generally thought, be the proper instrument of it, and the usefullest way of exercising this faculty. The causes I have to doubt are these.

First, because syllogism serves our reason but in one only of the forementioned parts of it; and that is, to show the connexion of the proofs in any one instance, and no more; but in this it is of no great use, since the

mind can conceive such connexion where it really is, as easily, nay perhaps better, without it.

If we will observe the actings of our own minds, we shall find that we reason best and clearest, when we only observe the connexion of the proof, without reducing our thoughts to any rule of syllogism. And therefore we may take notice, that there are many men that reason exceeding clear and rightly, who know not how to make a syllogism. He that will look into many parts of Asia and America, will find men reason there perhaps as acutely as himself, who yet never heard of a syllogism, nor can reduce any one argument to those forms: and I believe scarce any one makes syllogisms in reasoning within himself. Indeed syllogism is made use of on occasion, to discover a fallacy hid in a rhetorical flourish, or cunningly wrapt up in a smooth period; and, stripping an absurdity of the cover of wit and good language, show it in its naked deformity. But the weakness or fallacy of such a loose discourse it shows, by the artificial form it is put into, only to those who have thoroughly studied mode and figure, and have so examined the many ways that three propositions may be put together, as to know which of them does certainly conclude right, and which not, and upon what grounds it is that they do so. All who have so far considered syllogism, as to see the reason why in three propositions laid together in one form, the conclusion will be certainly right, but in another, not certainly so; I grant are certain of the conclusion they draw from the premises in the allowed modes and figures. But they who have not so far looked into those forms, are not sure by virtue of syllogism, that the conclusion certainly follows from the premises; they only take it to be so by an implicit faith in their teachers, and a confidence in those forms of argumentation; but this is still but believing, not being certain. Now if, of all mankind, those who can make syllogisms are extremely few in comparison of those who cannot; and if, of those few who have been taught logic, there is but a very small number, who do any more than believe that syllogisms in the allowed modes and figures do conclude right, without knowing cer-

tainly that they do so: if syllogisms must be taken for the only proper instrument of reason and means of knowledge; it will follow, that before Aristotle there was not one man that did or could know any thing by reason; and that since the invention of syllogisms, there is not one of ten thousand that doth.

But God has not been so sparing to men to make them barely two-legged creatures, and left it to Aristotle to make them rational, i. e. those few of them that he could get so to examine the grounds of syllogisms, as to see, that in above threescore ways, that three propositions may be laid together, there are but about fourteen, wherein one may be sure that the conclusion is right; and upon what grounds it is, that in these few the conclusion is certain, and in the other not. God has been more bountiful to mankind than so. He has given them a mind that can reason, without being instructed in methods of syllogizing: the understanding is not taught to reason by these rules; it has a native faculty to perceive the coherence or incoherence of its ideas, and can range them right, without any such perplexing repetitions. I say not this any way to lessen Aristotle, whom I look on as one of the greatest men amongst the ancients; whose large views, acuteness, and penetration of thought, and strength of judgment, few have equalled: and who in this very invention of forms of argumentation, wherein the conclusion may be shown to be rightly inferred, did great service against those who were not ashamed to deny any thing. And I readily own, that all right reasoning may be reduced to his forms of syllogism. But yet I think, without any diminution to him, I may truly say, that they are not the only, nor the best way of reasoning, for the leading of those into truth who are willing to find it, and desire to make the best use they may of their reason, for the attainment of knowledge. And he himself, it is plain, found out some forms to be conclusive, and others not, not by the forms themselves, but by the original way of knowledge, i. e by the visible agreement of ideas. Tell a country gentlewoman that the wind is south-west, and the weather louring, and like to rain, and she will easily understand it is not

safe for her to go abroad thin clad, in such a day, after a fever: she clearly sees the probable connexion of all these, viz. south-west wind, and clouds, rain, wetting, taking cold, relapse, and danger of death, without tying them together in those artificial and cumbersome fetters of several syllogisms, that clog and hinder the mind, which proceeds from one part to another quicker and clearer without them; and the probability which she easily perceives in things thus in their native state would be quite lost, if this argument were managed learnedly, and proposed in mode and figure. For it very often confounds the connexion: and, I think, every one will perceive in mathematical demonstrations, that the knowledge gained thereby comes shortest and clearest without syllogisms.

Inference is looked on as the great act of the rational faculty, and so it is when it is rightly made; but the mind, either very desirous to enlarge its knowledge, or very apt to favour the sentiments it has once imbibed, is very forward to make inferences, and therefore often makes too much haste, before it perceives the connexion of the ideas that must hold the extremes together.

To infer is nothing but, by virtue of one proposition laid down as true, to draw in another as true, i. e. to see or suppose such a connexion of the two ideas of the inferred proposition, v. g. Let this be the proposition laid down, "men shall be punished in another world," and from thence be inferred this other, "then men can determine themselves." The question now is to know whether the mind has made this inference right or no; if it has made it by finding out the intermediate ideas, and taking a view of the connexion of them, placed in a due order, it has proceeded rationally, and made a right inference. If it has done it without such a view, it has not so much made an inference that will hold, or an inference of right reason, as shown a willingness to have it be, or be taken for such. But in neither case is it syllogism that discovered those ideas, or showed the connexion of them, for they must be both found out, and the connexion every where perceived, before they can rationally be made use of in syllogism: unless it can be

said, that any idea, without considering what connexion it hath with the two other, whose agreement should be shown by it, will do well enough in a syllogism, and may be taken at a venture for the medius terminus, to prove any conclusion. But this nobody will say, because it is by virtue of the perceived agreement of the intermediate idea with the extremes, that the extremes are concluded to agree: and therefore each intermediate idea must be such as in the whole chain hath a visible connexion with those two it has been placed between, or else thereby the conclusion cannot be inferred or drawn in: for wherever any link of the chain is loose, and without connexion, there the whole strength of it is lost, and it hath no force to infer or draw in any thing. In the instance above-mentioned, what is it shows the force of the inference, and consequently the reasonableness of it, but a view of the connexion of all the intermediate ideas that draw in the conclusion, or proposition inferred? v. g. men shall be punished——— God the punisher———just punishment———the punished guilty———could have done otherwise——— freedom———self-determination: by which chain of ideas thus visibly linked together in train, i. e. each intermediate idea agreeing on each side with those two it is immediately placed between, the ideas of men and self-determination appear to be connected, i. e. this proposition, men can determine themselves, is drawn in, or inferred from this, that they shall be punished in the other world. For here the mind seeing the connexion there is between the idea of men's punishment in the other world and the idea of God punishing; between God punishing and the justice of the punishment; between justice of the punishment and guilt; between guilt and a power to do otherwise; between a power to do otherwise and freedom; and between freedom and self-determination: sees the connexion between men and self-determination.

Now I ask whether the connexion of the extremes be not more clearly seen in this simple and natural disposition, than in the perplexed repetitions, and jumble of five or six syllogisms. I must beg pardon for calling it

jumble, till somebody shall put these ideas into so many syllogisms and then say, that they are less jumbled, and their connexion more visible, when they are transposed and repeated, and spun out to a greater length in artificial forms, than in that short and natural plain order they are laid down in here, wherein every one may see it: and wherein they must be seen before they can be put into a train of syllogisms. For the natural order of the connecting ideas, must direct the order of the syllogisms, and a man must see the connexion of each intermediate idea with those that it connects, before he can with reason make use of it in a syllogism. And when all those syllogisms are made, neither those that are, nor those that are not logicians will see the force of the argumentation, i. e. the connexion of the extremes, one jot the better. [For those that are not men of art, not knowing the true forms of syllogism, nor the reasons of them, cannot know whether they are made in right and conclusive modes and figures or no, and so are not at all helped by the forms they are put into; though by them the natural order, wherein the mind could judge of their respective connexion, being disturbed, renders the illation much more uncertain than without them.] And as for the logicians themselves, they see the connexion of each intermediate idea with those it stands between (on which the force of the inference depends) as well before as after the syllogism is made, or else they do not see it at all. For a syllogism neither shows nor strengthens the connexion of any two ideas immediately put together, but only by the connexion seen in them shows what connexion the extremes have one with another. But what connexion the intermediate has with either of the extremes in that syllogism, that no syllogism does or can show. That the mind only doth or can perceive as they stand there in that juxta-position only by its own view, to which the syllogistical form it happens to be in gives no help or light at all, it only shows that if the intermediate idea agrees with those it is on both sides immediately applied to; then those two remote ones, or as they are called, extremes, do certainly agree, and therefore the immediate connexion of each idea to that

which it is applied to on each side, on which the force of the reasoning depends, is as well seen before as after the syllogism is made, or else he that makes the syllogism could never see it at all. This, as has been already observed, is seen only by the eye, or the perceptive faculty of the mind, taking a view of them laid together, in a juxta position; which view of any two it has equally, whenever they are laid together in any proposition, whether that proposition be placed as a major, or a minor, in a syllogism or no.

Of what use then are syllogisms? I answer, their chief and main use is in the schools, where men are allowed without shame to deny the agreement of ideas that do manifestly agree; or out of the schools, to those who from thence have learned without shame to deny the connexion of ideas, which even to themselves is visible. But to an ingenuous searcher after truth, who has no other aim but to find it, there is no need of any such form to force the allowing of the inference; the truth and reasonableness of it is better seen in ranging of the ideas in a simple and plain order: and hence it is, that men, in their own inquiries after truth, never use syllogisms to convince themselves, [or in teaching others to instruct willing learners.] Because, before they can put them into a syllogism, they must see the connexion that is between the intermediate idea and the two other ideas it is set between and applied to, to show their agreement; and when they see that, they see whether the inference be good or no, and so syllogism comes too late to settle it. For to make use again of the former instance; I ask whether the mind, considering the idea of justice, placed as an intermediate idea between the punishment of men and the guilt of the punished, (and, till it does so consider it, the mind cannot make use of it as a medius terminus) does not as plainly see the force and strength of the inference, as when it is formed into a syllogism. To show it in a very plain and easy example; let animal be the intermediate idea or medius terminus that the mind makes use of to show the connexion of homo and vivens: I ask, whether the mind does not more readily and plainly see that connexion in the simple

and proper position of the connecting idea in the middle; thus,

Homo——————Animal——————Vivens,

Than in this perplexed one,

Animal——Vivens——Homo——Animal:

Which is the position these ideas have in a syllogism, to show the connexion betwcen homo and vivens by the intervention of animal.

Indeed syllogism is thought to be of necessary use, even to the lovers of truth, to show them the fallacies that are often concealed in florid, witty, or involved discourses. But that this is a mistake will appear, if we consider, that the reason why sometimes men, who sincerely aim at truth, are imposed upon by such loose, and as they are called rhetorical discourses, is, that their fancies being struck with some lively metaphorical representations, they neglect to observe, or do not easily perceive what are the true ideas, upon which the inference depends. Now to show such men the weakness of such an argumentation, there needs no more but to strip it of the superfluous ideas, which, blended and confounded with those on which the inference depends, seem to show a connexion where there is none; or at least do hinder the discovery of the want of it; and then to lay the naked ideas, on which the force of the argumentation depends, in their due order, in which position the mind, taking a view of them, sees what connexion they have, and so is able to judge of the inference without any need of a syllogism at all.

I grant that mode and figure is commonly made use of in such cases, as if the detection of the incoherence of such loose discourses were wholly owing to the syllogistical form; and so I myself formerly thought, till upon a stricter examination I now find, that laying the intermediate ideas naked in their due order, shows the incoherence of the argumentation better than syllogism; not only as subjecting each link of the chain to the immediate view of the mind in its proper place, whereby its connexion is best observed; but also because syllo-

gism shows the incoherence only to those (who are not one of ten thousand) who perfectly understand mode and figure, and the reason upon which those forms are established: whereas a due and orderly placing of the ideas upon which the inference is made, makes every one, whether logician or not logician, who understands the terms, and hath the faculty to perceive the agreement or disagreement of such ideas (without which, in or out of syllogism, he cannot perceive the strength or weakness, coherence or incoherence of the discourse) see the want of connexion in the argumentation, and the absurdity of the inference.

And thus I have known a man unskilful in syllogism, who at first hearing could perceive the weakness and inconclusiveness of a long artificial and plausible discourse wherewith others better skilled in syllogism have been misled. And I believe there are few of my readers who do not know such. And indeed if it were not so, the debates of most princes councils, and the business of assemblies would be in danger to be mismanaged, since those who are relied upon, and have usually a great stroke in them, are not always such, who have the good luck to be perfectly knowing in the forms of syllogism, or expert in mode and figure. And if syllogism were the only, or so much as the surest way to detect the fallacies of artificial discourses; I do not think that all mankind, even princes in matters that concern their crowns and dignities, are so much in love with falsehood and mistake, that they would every where have neglected to bring syllogism into the debates of moment; or thought it ridiculous so much as to offer them in affairs of consequence: a plain evidence to me, that men of parts and penetration, who were not idly to dispute at their ease, but were to act according to the result of their debates, and often pay for their mistakes with their heads or fortunes, found those scholastic forms were of little use to discover truth or fallacy, whilst both the one and the other might be shown, and better shown without them, to those who would not refuse to see what was visibly shown them.

Secondly, another reason that makes me doubt whether syllogism be the only proper instrument of reason in the discovery of truth, is, that of whatever use, mode and figure is pretended to be in the laying open of fallacy (which has been above considered) those scholastic forms of discourse are not less liable to fallacies than the plainer ways of argumentation: and for this I appeal to common observation, which has always found these artificial methods of reasoning more adapted to catch and entangle the mind, than to instruct and inform the understanding. And hence it is that men, even when they are baffled and silenced in this scholastic way, are seldom or never convinced, and so brought over to the conquering side: they perhaps acknowledge their adversary to be the more skilful disputant; but rest nevertheless persuaded of the truth on their side; and go away, worsted as they are, with the same opinion they brought with them, which they could not do, if this way of argumentation carried light and conviction with it, and made men see where the truth lay. And therefore syllogism has been thought more proper for the attaining victory in dispute, than for the discovery or confirmation of truth in fair inquiries. And if it be certain, that fallacies can be couched in syllogism, as it cannot be denied; it must be something else, and not syllogism, that must discover them.

I have had experience how ready some men are, when all the use which they have been wont to ascribe to any thing is not allowed, to cry out, that I am for laying it wholly aside. But, to prevent such unjust and groundless imputations, I tell them, that I am not for taking away any helps to the understanding, in the attainment of knowledge. And if men skilled in, and used to syllogism, find them assisting to their reason in the discovery of truth, I think they ought to make use of them. All that I aim at is, that they should not ascribe more to those forms than belongs to them; and think that men have no use, or not so full an use of their reasoning faculty without them. Some eyes want spectacles to see things clearly and distinctly: but let not those that use them therefore say, nobody can see clearly without

them: those who do so will be thought in favour of art (which perhaps they are beholden to) a little too much to depress and discredit nature. Reason, by its own penetration where it is strong and exercised, usually sees quicker and clearer without syllogism. If use of those spectacles has so dimmed its sight, that it cannot without them see consequences or inconsequences in argumentation, I am not so unreasonable as to be against the using them. Every one knows what best fits his own sight. But let him not thence conclude all in the dark, who use not just the same helps that he finds a need of.

Helps little in demonstration, less in probability.

§. 5. But however it be in knowledge, I think I may truly say, it is of far less, or no use at all in probabilities. For, the assent there being to be determined by the preponderancy, after due weighing of all the proofs, with all circumstances on both sides, nothing is so unfit to assist the mind in that, as syllogism; which running away with one assumed probability, or one topical argument, pursues that till it has led the mind quite out of sight of the thing under consideration; and forcing it upon some remote difficulty, holds it fast there, intangled perhaps, and as it were manacled in the chain of syllogisms, without allowing it the liberty, much less affording it the helps, requisite to show on which side, all things considered, is the greater probability.

Serves not to increase our knowledge, but fence with it.

§. 6. But let it help us (as perhaps may be said) in convincing men of their errours and mistakes: (and yet I would fain see the man that was forced out of his opinion by dint of syllogism) yet still it fails our reason in that part, which, if not its highest perfection, is yet certainly its hardest task, and that which we most need its help in; and that is the finding out of proofs, and making new discoveries. The rules of syllogism serve not to furnish the mind with those intermediate ideas that may show the connexion of remote ones. This way of reasoning discovers no new proofs, but is the art of marshalling and ranging the old ones we have already. The forty-seventh proposition of the first book of Euclid is very true; but the discovery of it, I think, not owing

to any rules of common logic. A man knows first, and then he is able to prove syllogistically. So that syllogism comes after knowledge, and then a man has little or no need of it. But it is chiefly by the finding out those ideas that show the connexion of distant ones, that our stock of knowledge is increased, and that useful arts and sciences are advanced. Syllogism at best is but the art of fencing with the little knowledge we have, without making any addition to it. And if a man should employ his reason all this way, he will not do much otherwise than he, who having got some iron out of the bowels of the earth, should have it beaten up all into swords, and put it into his servants hands to fence with, and bang one another. Had the king of Spain employed the hands of his people, and his Spanish iron so, he had brought to light but little of that treasure that lay so long hid in the entrails of America. And I am apt to think, that he who shall employ all the force of his reason only in brandishing of syllogisms, will discover very little of that mass of knowledge, which lies yet concealed in the secret recesses of nature; and which, I am apt to think, native rustic reason (as it formerly has done) is likelier to open a way to, and add to the common stock of mankind, rather than any scholastic proceeding by the strict rule of mode and figure.

Other helps should be sought.

§. 7. I doubt not nevertheless, but there are ways to be found out to assist our reason in this most useful part; and this the judicious Hooker encourages me to say, who in his Eccl. Pol. l. 1. §. 6, speaks thus: "If there might be added "the right helps of true art and learning (which helps, "I must plainly confess, this age of the world carrying "the name of a learned age, doth neither much know, "nor generally regard), there would undoubtedly be "almost as much difference in maturity of judgment "between men therewith inured, and that which men "now are, as between men that are now, and innocents." I do not pretend to have found, or discovered here any of those right helps of art, this great man of deep thought mentions; but this is plain, that syllogism, and the logic now in use, which were as well

known in his days, can be none of those he means. It is sufficient for me, if by a discourse, perhaps something out of the way, I am sure as to me wholly new and unborrowed, I shall have given occasion to others to cast about for new discoveries, and to seek in their own thoughts for those right helps of art, which will scarce be found, I fear, by those who servilely confine themselves to the rules and dictates of others. For beaten tracks lead this sort of cattle (as an observing Roman calls them) whose thoughts reach only to imitation, "non quo eundum est, sed quo itur." But I can be bold to say, that this age is adorned with some men of that strength of judgment, and largeness of comprehension, that if they would employ their thoughts on this subject, could open new and undiscovered ways to the advancement of knowledge.

We reason about particulars.

§. 8. Having here had an occasion to speak of syllogism in general, and the use of it in reasoning, and the improvement of our knowledge, it is fit before I leave this subject, to take notice of one manifest mistake in the rules of syllogism, viz. that no syllogistical reasoning can be right and conclusive, but what has, at least, one general proposition in it. As if we could not reason, and have knowledge about particulars: whereas, in truth, the matter rightly considered, the immediate object of all our reasoning and knowledge, is nothing but particulars. Every man's reasoning and knowledge is only about the ideas existing in his own mind, which are truly, every one of them, particular existences; and our knowledge and reason about other things, is only as they correspond with those of our particular ideas. So that the perception of the agreement or disagreement of our particular ideas, is the whole and utmost of all our knowledge. Universality is but accidental to it, and consists only in this, that the particular ideas, about which it is, are such, as more than one particular thing can correspond with, and be represented by. But the perception of the agreement or disagreement of any two ideas, consequently our own knowledge, is equally clear and certain, whether either, or both, or neither of those

ideas be capable of representing more real beings than one, or no. One thing more I crave leave to offer about syllogism, before I leave it, viz. may one not upon just ground inquire whether the form syllogism now has, is that which in reason it ought to have? For the medius terminus being to join the extremes, i. e. the intermediate idea by its intervention, to show the agreement or disagreement of the two in question; would not the position of the medius terminus be more natural, and show the agreement or disagreement of the extremes clearer and better, if it were placed in the middle between them? Which might be easily done by transposing the propositions, and making the medius terminus the predicate of the first, and the subject of the second. As thus,

"Omnis homo est animal,
"Omne animal est vivens,
"Ergo omnis homo est vivens."

"Omne corpus est entensum & solidum,
"Nullum extensum & solidum est pura extensio,
"Ergo corpus non est pura extensio."

I need not trouble my reader with instances in syllogisms, whose conclusions are particular. The same reason holds for the same form in them, as well as in the general.

1. Reason fails us for want of ideas.

§. 9. Reason, though it penetrates into the depths of the sea and earth, elevates our thoughts as high as the stars, and leads us through the vast spaces and large rooms of this mighty fabric, yet it comes far short of the real extent of even corporeal being: and there are many instances wherein it fails us: as,

First, it perfectly fails us, where our ideas fail. It neither does, nor can extend itself farther than they do. And therefore wherever we have no ideas, our reasoning stops, and we are at an end of our reckoning: and if at any time we reason about words, which do not stand for

any ideas, it is only about those sounds, and nothing else.

§. 10. Secondly, our reason is often puzzled, and at a loss, because of the obscurity, confusion, or imperfection of the ideas it is employed about; and there we are involved in difficulties and contradictions. Thus not having any perfect idea of the least extension of matter, nor of infinity, we are at a loss about the divisibility of matter; but having perfect, clear, and distinct ideas of number, our reason meets with none of those inextricable difficulties in numbers, nor finds itself involved in any contradictions about them. Thus, we having but imperfect ideas of the operations of our minds, and of the beginning of motion, or thought, how the mind produces either of them in us, and much imperfecter yet of the operation of God; run into great difficulties about free created agents, which reason cannot well extricate itself out of.

2. Because of obscure and imperfect ideas.

§. 11. Thirdly, our reason is often at a stand, because it perceives not those ideas, which could serve to show the certain or probable agreement or disagreement of any other two ideas: and in this some men's faculties far outgo others. Till algebra, that great instrument and instance of human sagacity, was discovered, men, with amazement, looked on several of the demonstrations of antient mathematicians, and could scarce forbear to think the finding several of those proofs to be something more than human.

3. For want of intermediate ideas.

§. 12. Fourthly, the mind, by proceeding upon false principles, is often engaged in absurdities and difficulties, brought into straits and contradictions, without knowing how to free itself; and in that case it is in vain to implore the help of reason, unless it be to discover the falsehood and reject the influence of those wrong principles. Reason is so far from clearing the difficulties which the building upon false foundations brings a man into, that if he will pursue it, it entangles him the more, and engages him deeper in perplexities.

4. Because of wrong principles.

5. Because of doubtful terms.

§. 13. Fifthly, as obscure and imperfect ideas often involve our reason, so, upon the same ground, do dubious words, and uncertain signs, often in discourses and arguings, when not warily attended to, puzzle men's reason, and bring them to a non-plus. But these two latter are our fault, and not the fault of reason. But yet the consequences of them are nevertheless obvious; and the perplexities or errours they fill men's minds with, are every where observable.

Our highest degree of knowledge is intuitive, without reasoning.

§. 14. Some of the ideas that are in the mind, are so there, that they can be by themselves immediately compared one with another: and in these the mind is able to perceive, that they agree or disagree as clearly, as that it has them. Thus the mind perceives, that an arch of a circle is less than the whole circle, as clearly as it does the idea of a circle: and this therefore, as has been said, I call intuitive knowledge; which is certain, beyond all doubt, and needs no probation, nor can have any; this being the highest of all human certainty. In this consists the evidence of all those maxims, which nobody has any doubt about, but every man (does not, as is said, only assent to, but) knows to be true, as soon as ever they are proposed to his understanding. In the discovery of, and assent to these truths, there is no use of the discursive faculty, no need of reasoning, but they are known by a superior and higher degree of evidence. And such, if I may guess at things unknown, I am apt to think, that angels have now, and the spirits of just men made perfect shall have, in a future state, of thousands of things, which now either wholly escape our apprehensions, or which, our short-sighted reason having got some faint glimpse of, we, in the dark, grope after.

The next is demonstration by reasoning.

§. 15. But though we have, here and there, a little of this clear light, some sparks of bright knowledge; yet the greatest part of our ideas are such, that we cannot discern their agreement or disagreement by an immediate com-

paring them. And in all these we have need of reasoning, and must, by discourse and inference, make our discoveries. Now of these there are two sorts, which I shall take the liberty to mention here again.

First, those whose agreement or disagreement, though it cannot be seen by an immediate putting them together, yet may be examined by the intervention of other ideas, which can be compared with them. In this case when the agreement or disagreement of the intermediate idea, on both sides with those which we would compare, is plainly discerned, there it amounts to a demonstration, whereby knowledge is produced; which though it be certain, yet it is not so easy, nor altogether so clear as intuitive knowledge. Because in that there is barely one simple intuition, wherein there is no room for any the least mistake or doubt; the truth is seen all perfectly at once. In demonstration, it is true, there is intuition too, but not altogether at once; for there must be a remembrance of the intuition of the agreement of the medium, or intermediate idea, with that we compared it with before, when we compare it with the other; and where there be many mediums, there the danger of the mistake is the greater. For each agreement or disagreement of the ideas must be observed and seen in each step of the whole train, and retained in the memory, just as it is; and the mind must be sure that no part of what is necessary to make up the demonstration is omitted or overlooked. This makes some demonstrations long and perplexed, and too hard for those who have not strength of parts distinctly to perceive, and exactly carry so many particulars orderly in their heads. And even those, who are able to master such intricate speculations, are fain sometimes to go over them again, and there is need of more than one review before they can arrive at certainty. But yet where the mind clearly retains the intuition it had of the agreement of any idea with another, and that with a third, and that with a fourth, &c. there the agreement of the first and the fourth is a demonstration, and produces certain knowledge, which may be called rational knowledge, as the other is intuitive.

To supply the narrowness of this, we have nothing but judgment upon probable reasoning.

§. 16. Secondly, there are other ideas, whose agreement or disagreement can no otherwise be judged of, but by the intervention of others which have not a certain agreement with the extremes, but an usual or likely one: and in these it is that the judgment is properly exercised, which is the acquiescing of the mind, that any ideas do agree, by comparing them with such probable mediums. This, though it never amounts to knowledge, no not to that which is the lowest degree of it: yet sometimes the intermediate ideas tie the extremes so firmly together, and the probability is so clear and strong, that assent as necessarily follows it, as knowledge does demonstration. The great excellency and use of the judgment is to observe right, and take a true estimate of the force and weight of each probability; and then casting them up all right together, choose that side which has the overbalance.

Intuition, demonstration, judgment.

§. 17. Intuitive knowledge is the perception of the certain agreement or disagreement of two ideas immediately compared together.

Rational knowledge is the perception of the certain agreement or disagreement of any two ideas, by the intervention of one or more other ideas.

Judgment is the thinking or taking two ideas to agree or disagree, by the intervention of one or more ideas, whose certain agreement or disagreement with them it does not perceive, but hath observed to be frequent and usual.

Consequences of words, and consequences of ideas.

§. 18. Though the deducing one proposition from another, or making inferences in words, be a great part of reason, and that which it is usually employed about; yet the principal act of ratiocination is the finding the agreement or disagreement of two ideas one with another, by the intervention of a third. As a man, by a yard, finds two houses to be of the same length, which could not be brought together to measure their equality by juxta-position. Words have their consequences, as

the signs of such ideas: and things agree or disagree, as really they are; but we observe it only by our ideas.

Four sorts of arguments.

§. 19. Before we quit this subject, it may be worth our while a little to reflect on four sorts of arguments, that men, in their reasonings with others, do ordinarily make use of, to prevail on their assent; or at least so to awe them, as to silence their opposition.

1. Ad verecundiam.

First, the first is to allege the opinions of men, whose parts, learning, eminency, power, or some other cause has gained a name, and settled their reputation in the common esteem with some kind of authority. When men are established in any kind of dignity, it is thought a breach of modesty for others to derogate any way from it and question the authority of men, who are in possession of it. This is apt to be censured, as carrying with it too much of pride, when a man does not readily yield to the determination of approved authors, which is wont to be received with respect and submission by others: and it is looked upon as insolence for a man to set up and adhere to his own opinion, against the current stream of antiquity; or to put it in the balance against that of some learned doctor, or otherwise approved writer. Whoever backs his tenets with such authorities, thinks he ought thereby to carry the cause, and is ready to style it impudence in any one who shall stand out against them. This, I think, may be called argumentum ad verecundiam.

2. Ad ignorantiam.

§. 20. Secondly, another way that men ordinarily use to drive others, and force them to submit their judgments, and receive the opinion in debate, is to require the adversary to admit what they allege as a proof, or to assign a better. And this I call argumentum ad ignorantiam.

3. Ad hominem.

§. 21. Thirdly, a third way is to press a man with consequences drawn from his own principles, or concessions. This is already known under the name of argumentum ad hominem.

4. Ad judicium.

§. 22. Fourthly, the fourth is the using of proofs drawn from any of the foundations

of knowledge or probability. This I call argumentum ad judicium. This alone, of all the four, brings true instruction with it, and advances us in our way to knowledge. For, 1. It argues not another man's opinion to be right, because I out of respect, or any other consideration but that of conviction, will not contradict him. 2. It proves not another man to be in the right way, nor that I ought to take the same with him, because I know not a better. 3. Nor does it follow that another man is in the right way, because he has shown me that I am in the wrong. I may be modest, and therefore not oppose another man's persuasion: I may be ignorant, and not be able to produce a better: I may be in an errour, and another may show me that I am so. This may dispose me, perhaps, for the reception of truth, but helps me not to it; that must come from proofs and arguments, and light arising from the nature of things themselves, and not from my shame-facedness, ignorance, or errour.

Above, contrary, and according to reason.

§. 23. By what has been before said of reason, we may be able to make some guess at the distinction of things, into those that are according to, above, and contrary to reason. 1. According to reason are such propositions, whose truth we can discover by examining and tracing those ideas we have from sensation and reflection; and by natural deduction find to be true or probable. 2. Above reason are such propositions, whose truth or probability we cannot by reason derive from those principles. 3. Contrary to reason are such propositions, as are inconsistent with, or irreconcileable to, our clear and distinct ideas. Thus the existence of one God is according to reason; the existence of more than one God, contrary to reason; the resurrection of the dead, above reason. Farther, as above reason may be taken in a double sense, viz. either as signifying above probability, or above certainty; so in that large sense also, contrary to reason, is, I suppose, sometimes taken.

Reason and faith not opposite.

§. 24. There is another use of the word reason, wherein it is opposed to faith; which though it be in itself a very improper

way of speaking, yet common use has so authorized it, that it would be folly either to oppose or hope to remedy it: only I think it may not be amiss to take notice, that however faith be opposed to reason, faith is nothing but a firm assent of the mind: which if it be regulated, as is our duty, cannot be afforded to any thing but upon good reason; and so cannot be opposite to it. He that believes, without having any reason for believing, may be in love with his own fancies; but neither seeks truth as he ought, nor pays the obedience due to his Maker, who would have him use those discerning faculties he has given him, to keep him out of mistake and errour. He that does not this to the best of his power, however he sometimes lights on truth, is in the right but by chance; and I know not whether the luckiness of the accident will excuse the irregularity of his proceeding. This at least is certain, that he must be accountable for whatever mistakes he runs into: whereas he that makes use of the light and faculties God has given him, and seeks sincerely to discover truth by those helps and abilities he has, may have this satisfaction in doing his duty as a rational creature, that, though he should miss truth, he will not miss the reward of it. For he governs his assent right, and places it as he should, who, in any case or matter whatsoever, believes or disbelieves, according as reason directs him. He that doth otherwise transgresses against his own light, and misuses those faculties which were given him to no other end, but to search and follow the clearer evidence and greater probability. But, since reason and faith are by some men opposed, we will so consider them in the following chapter.

CHAP. XVIII.

Of Faith and Reason, and their distinct Provinces.

§. 1. IT has been above shown, 1. That we are of necessity ignorant, and want knowledge of all sorts, where we want

Necessary to know their boundaries.

ideas. 2. That we are ignorant, and want rational knowledge where we want proofs. 3. That we want certain knowledge and certainty, as far as we want clear and determined specific ideas. 4. That we want probability to direct our assent in matters where we have neither knowledge of our own, nor testimony of other men, to bottom our reason upon.

From these things thus premised, I think we may come to lay down the measures and boundaries between faith and reason; the want whereof may possibly have been the cause, if not of great disorders, yet at least of great disputes, and perhaps mistakes in the world. For till it be resolved, how far we are to be guided by reason, and how far by faith, we shall in vain dispute, and endeavour to convince one another in matters of religion.

Faith and reason what, as contradistinguished.

§. 2. I find every sect, as far as reason will help them, make use of it gladly: and where it fails them, they cry out, it is matter of faith, and above reason. And I do not see how they can argue, with any one, or ever convince a gainsayer who makes use of the same plea, without setting down strict boundaries between faith and reason; which ought to be the first point established in all questions, where faith has any thing to do.

Reason therefore here, as contradistinguished to faith, I take to be the discovery of the certainty or probability of such propositions or truths, which the mind arrives at by deduction made from such ideas, which it has got by the use of its natural faculties; viz. by sensation or reflection.

Faith, on the other side, is the assent to any proposition, not thus made out by the deductions of reason; but upon the credit of the proposer, as coming from God, in some extraordinary way of communication. This way of discovering truths to men we call revelation.

No new simple idea can be conveyed by traditional revelation.

§. 3. First then I say, that no man inspired by God can by any revelation communicate to others any new simple ideas, which they had not before from sensation or reflection. For whatsoever impressions he

himself may have from the immediate hand of God, this revelation, if it be of new simple ideas, cannot be conveyed to another, either by words, or any other signs. Because words, by their immediate operation on us, cause no other ideas, but of their natural sounds: and it is by the custom of using them for signs, that they excite and revive in our minds latent ideas; but yet only such ideas as were there before. For words seen or heard, recal to our thoughts those ideas only, which to us they have been wont to be signs of; but cannot introduce any perfectly new, and formerly unknown simple ideas. The same holds in all other signs, which cannot signify to us things, of which we have before never had any idea at all.

Thus whatever things were discovered to St. Paul, when he was rapt up into the third heaven, whatever new ideas his mind there received, all the description he can make to others of that place, is only this, that there are such things, "as eye hath not seen, nor ear "heard, nor hath it entered into the heart of man to "conceive." And supposing God should discover to any one, supernaturally, a species of creatures inhabiting, for example, Jupiter or Saturn, (for that it is possible there may be such, nobody can deny) which had six senses; and imprint on his mind the ideas conveyed to theirs by that sixth sense, he could no more, by words, produce in the minds of other men those ideas, imprinted by that sixth sense, than one of us could convey the idea of any colour by the sounds of words into a man, who, having the other four senses perfect, had always totally wanted the fifth of seeing. For our simple ideas then, which are the foundation and sole matter of all our notions and knowledge, we must depend wholly on our reason, I mean our natural faculties; and can by no means receive them, or any of them, from traditional revelation; I say, traditional revelation, in distinction to original revelation. By the one, I mean that first impression, which is made immediately by God, on the mind of any man, to which we cannot set any bounds; and by the other, those impressions delivered over to

others in words, and the ordinary ways of conveying our conceptions one to another.

Traditional revelation may make us know propositions knowable also by reason, but not with the same certainty that reason doth.

§. 4. Secondly, I say, that the same truths may be discovered, and conveyed down from revelation, which are discoverable to us by reason, and by those ideas we naturally may have. So God might, by revelation, discover the truth of any proposition in Euclid; as well as men, by the natural use of their faculties, come to make the discovery themselves. In all things of this kind, there is little need or use of revelation, God having furnished us with natural and surer means to arrive at the knowledge of them. For whatsoever truth we come to the clear discovery of, from the knowledge and contemplation of our own ideas, will always be certainer to us, than those which are conveyed to us by traditional revelation. For the knowledge we have, that this revelation came at first from God, can never be so sure, as the knowledge we have from the clear and distinct perception of the agreement or disagreement of our own ideas; v. g. if it were revealed some ages since, that the three angles of a triangle were equal to two right ones, I might assent to the truth of that proposition, upon the credit of the tradition, that it was revealed; but that would never amount to so great a certainty, as the knowledge of it, upon the comparing and measuring my own ideas of two right angles, and the three angles of a triangle. The like holds in matter of fact, knowable by our senses; v. g. the history of the deluge is conveyed to us by writings, which had their original from revelation: and yet nobody, I think, will say he has as certain and clear a knowledge of the flood, as Noah that saw it; or that he himself would have had, had he then been alive and seen it. For he has no greater assurance than that of his senses, that it is writ in the book supposed writ by Moses inspired: but he has not so great an assurance that Moses writ that book, as if he had seen Moses write it. So that the assurance of its being a revelation is less still than the assurance of his senses

§. 5. In propositions then, whose certainty is built upon the clear perception of the agreement or disagreement of our ideas, attained either by immediate intuition, as in self-evident propositions, or by evident deductions of reason in demonstrations, we need not the assistance of revelation, as necessary to gain our assent, and introduce them into our minds. Because the natural ways of knowledge could settle them there, or had done it already; which is the greatest assurance we can possibly have of any thing, unless where God immediately reveals it to us: and there too our assurance can be no greater, than our knowledge is, that it is a revelation from God. But yet nothing, I think, can, under that title, shake or over-rule plain knowledge; or rationally prevail with any man to admit it for true, in a direct contradiction to the clear evidence of his own understanding. For since no evidence of our faculties, by which we receive such revelations, can exceed, if equal, the certainty of our intuitive knowledge, we can never receive for a truth any thing that is directly contrary to our clear and distinct knowledge: v. g. the ideas of one body, and one place, do so clearly agree, and the mind has so evident a perception of their agreement, that we can never assent to a proposition, that affirms the same body to be in two distant places at once, however it should pretend to the authority of a divine revelation: since the evidence, first, that we deceive not ourselves, in ascribing it to God; secondly, that we understand it right; can never be so great, as the evidence of our own intuitive knowledge, whereby we discern it impossible for the same body to be in two places at once. And therefore no proposition can be received for divine revelation, or obtain the assent due to all such, if it be contradictory to our clear intuitive knowledge. Because this would be to subvert the principles and foundations of all knowledge, evidence, and assent whatsoever: and there would be left no difference between truth and falsehood, no measures of credible and incredible in the world, if doubtful propositions shall take place before self-evident; and what we certainly

Revelation cannot be admitted against the clear evidence of reason.

know give way to what we may possibly be mistaken in. In propositions therefore contrary to the clear perception of the agreement or disagreement of any of our ideas, it will be in vain to urge them as matters of faith. They cannot move our assent, under that or any other title whatsoever. For faith can never convince us of any thing that contradicts our knowledge. Because though faith be founded on the testimony of God (who cannot lye) revealing any proposition to us; yet we cannot have an assurance of the truth of its being a divine revelation, greater than our own knowledge: since the whole strength of the certainty depends upon our knowledge that God revealed it, which in this case, where the proposition supposed revealed contradicts our knowledge or reason, will always have this objection hanging to it, viz. that we cannot tell how to conceive that to come from God, the bountiful Author of our being, which, if received for true, must overturn all the principles and foundations of knowledge he has given us; render all our faculties useless; wholly destroy the most excellent part of his workmanship, our understandings; and put a man in a condition, wherein he will have less light, less conduct than the beast that perisheth. For if the mind of man can never have a clearer (and perhaps not so clear) evidence of any thing to be a divine revelation, as it has of the principles of its own reason, it can never have a ground to quit the clear evidence of its reason, to give a place to a proposition, whose revelation has not a greater evidence than those principles have.

Traditional revelation much less.

§. 6. Thus far a man has use of reason, and ought to hearken to it, even in immediate and original revelation, where it is supposed to be made to himself: but to all those who pretend not to immediate revelation, but are required to pay obedience, and to receive the truths revealed to others, which by the tradition of writings, or word of mouth, are conveyed down to them; reason has a great deal more to do, and is that only which can induce us to receive them. For matter of faith being only divine revelation, and nothing else; faith, as we use the word,

(called commonly divine faith) has to do with no propositions, but those which are supposed to be divinely revealed. So that I do not see how those, who make revelation alone the sole object of faith, can say, that it is a matter of faith, and not of reason, to believe that such or such a proposition, to be found in such or such a book, is of divine inspiration; unless it be revealed, that that proposition, or all in that book, was communicated by divine inspiration. Without such a revelation, the believing, or not believing that proposition or book to be of divine authority, can never be matter of faith, but matter of reason; and such as I must come to an assent to, only by the use of my reason, which can never require or enable me to believe that which is contrary to itself: it being impossible for reason ever to procure any assent to that, which to itself appears unreasonable.

In all things therefore, where we have clear evidence from our ideas, and those principles of knowledge I have above-mentioned, reason is the proper judge; and revelation, though it may in consenting with it confirm its dictates, yet cannot in such cases invalidate its decrees: nor can we be obliged, where we have the clear and evident sentence of reason, to quit it for the contrary opinion, under a pretence that it is a matter of faith; which can have no authority against the plain and clear dictates of reason.

Things above reason,

§. 7. But, thirdly, there being many things, wherein we have very imperfect notions, or none at all; and other things, of whose past, present, or future existence, by the natural use of our faculties, we can have no knowledge at all; these, as being beyond the discovery of our natural faculties, and above reason, are, when revealed, the proper matter of faith. Thus, that part of the angels rebelled against God, and thereby lost their first happy state; and that the dead shall rise, and live again; these and the like, being beyond the discovery of reason, are purely matters of faith; with which reason has directly nothing to do.

or not contrary to reason, if revealed, are matter of faith.

§. 8. But since God in giving us the light of reason has not thereby tied up his own hands from affording us, when he thinks fit, the light of revelation in any of those matters, wherein our natural faculties are able to give a probable determination; revelation, where God has been pleased to give it, must carry it against the probable conjectures of reason. Because the mind not being certain of the truth of that it does not evidently know, but only yielding to the probability that appears in it, is bound to give up its assent to such a testimony; which, it is satisfied, comes from one who cannot err, and will not deceive. But yet it still belongs to reason to judge of the truth of its being a revelation, and of the signification of the words wherein it is delivered. Indeed, if any thing shall be thought revelation, which is contrary to the plain principles of reason, and the evident knowledge the mind has of its own clear and distinct ideas; there reason must be hearkened to, as to a matter within its province: since a man can never have so certain a knowledge, that a proposition which contradicts the clear principles and evidence of his own knowledge, was divinely revealed, or that he understands the words rightly wherein it is delivered; as he has, that the contrary is true: and so is bound to consider and judge of it as a matter of reason, and not swallow it, without examination, as a matter of faith.

Revelation in matters where reason cannot judge, or but probably, ought to be hearkened to.

§. 9. First, whatever proposition is revealed, of whose truth our mind, by its natural faculties and notions, cannot judge; that is purely matter of faith, and above reason.

Secondly, all propositions whereof the mind, by the use of its natural faculties, can come to determine and judge from naturally acquired ideas, are matter of reason; with this difference still, that in those concerning which it has but an uncertain evidence, and so is persuaded of their truth only upon probable grounds, which still admit a possibility of the contrary to be true, without doing violence to

the certain evidence of its own knowledge, and overturning the principles of its own reason; in such probable propositions, I say, an evident revelation ought to determine our assent even against probability. For where the principles of reason have not evidenced a proposition to be certainly true or false, there clear revelation, as another principle of truth, and ground or assent, may determine; and so it may be matter of faith, and be also above reason. Because reason, in that particular matter, being able to reach no higher than probability, faith gave the determination where reason came short; and revelation discovered on which side the truth lay.

In matters where reason can afford certain knowledge, that is to be hearkened to.

§. 10. Thus far the dominion of faith reaches, and that without any violence or hindrance to reason; which is not injured or disturbed, but assisted and improved, by new discoveries of truth coming from the eternal fountain of all knowledge. Whatever God hath revealed is certainly true; no doubt can be made of it. This is the proper object of faith: but whether it be a divine revelation or no, reason must judge; which can never permit the mind to reject a greater evidence to embrace what is less evident, nor allow it to entertain probability in opposition to knowledge and certainty. There can be no evidence, that any traditional revelation is of divine original, in the words we receive it, and in the sense we understand it, so clear and so certain, as that of the principles of reason; and therefore nothing that is contrary to, and inconsistent with, the clear and self-evident dictates of reason, has a right to be urged or assented to as a matter of faith, wherein reason hath nothing to do. Whatsoever is divine revelation ought to over-rule all our opinions, prejudices, and interest, and hath a right to be received with full assent. Such a submission as this, of our reason to faith, takes not away the land-marks of knowledge: this shakes not the foundations of reason, but leaves us that use of our faculties, for which they were given us.

If the boundaries be not

§. 11. If the provinces of faith and reason are not kept distinct by these bounda-

set between faith and reason, no enthusiasm or extravagancy in religion can be contradicted.

ries, there will, in matters of religion, be no room for reason at all; and those extravagant opinions and ceremonies that are to be found in the several religions of the world, will not deserve to be blamed. For, to this crying up of faith, in opposition to reason, we may, I think, in good measure ascribe those absurdities that fill almost all the religions which possess and divide mankind. For men having been principled with an opinion, that they must not consult reason in the things of religion, however apparently contradictory to common sense, and the very principles of all their knowledge; have let loose their fancies and natural superstition; and have been by them led into so strange opinions, and extravagant practices in religion, that a considerate man cannot but stand amazed at their follies, and judge them so far from being acceptable to the great and wise God, that he cannot avoid thinking them ridiculous, and offensive to a sober good man. So that in effect religion, which should most distinguish us from beasts, and ought most peculiarly to elevate us, as rational creatures, above brutes, is that wherein men often appear most irrational and more senseless than beasts themselves. "Credo, quia impossibile est;" I believe, because it is impossible, might in a good man pass for a sally of zeal; but would prove a very ill rule for men to choose their opinions or religion by.

CHAP. XIX.

Of Enthusiasm.

Love of truth necessary.

§. 1. HE that would seriously set upon the search of truth, ought in the first place to prepare his mind with a love of it. For he that loves it not, will not take much pains to get it, nor be much concerned when he misses it. There is nobody in the commonwealth of learning,

who does not profess himself a lover of truth; and there is not a rational creature that would not take it amiss to be thought otherwise of. And yet for all this, one may truly say, that there are very few lovers of truth for truth-sake, even amongst those who persuade themselves that they are so. How a man may know whether he be so in earnest, is worth inquiry: and I think there is one unerring mark of it, viz. the not entertaining any proposition with greater assurance, than the proofs it is built upon will warrant. Whoever goes beyond this measure of assent, it is plain, receives not truth in the love of it; loves not truth for truth-sake, but for some other by-end. For the evidence that any proposition is true (except such as are self-evident) lying only in the proofs a man has of it, whatsoever degrees of assent he affords it beyond the degrees of that evidence, it is plain that all the surplusage of assurance is owing to some other affection, and not to the love of truth: it being as impossible, that the love of truth should carry my assent above the evidence there is to me that it is true, as that the love of truth should make me assent to any proposition for the sake of that evidence, which it has not, that it is true; which is in effect to love it as a truth, because it is possible or probable that it may not be true. In any truth that gets not possession of our minds by the irresistible light of self-evidence, or by the force of demonstration, the arguments that gain it assent are the vouchers and gage of its probability to us; and we can receive it for no other, than such as they deliver it to our understandings. Whatsoever credit or authority we give to any proposition, more than it receives from the principles and proofs it supports itself upon, is owing to our inclinations that way, and is so far a derogation from the love of truth as such: which, as it can receive no evidence from our passions or interests, so it should receive no tincture from them.

A forwardness to dictate, from whence.

§. 2. The assuming an authority of dictating to others, and a forwardness to prescribe to their opinions, is a constant concomitant of this bias and corruption of our judgments. For how almost can it be otherwise, but

that he should be ready to impose on another's belief, who has already imposed on his own? Who can reasonably expect arguments and conviction from him, in dealing with others, whose understanding is not accustomed to them in his dealing with himself? Who does violence to his own faculties, tyrannizes over his own mind, and usurps the prerogative that belongs to truth alone, which is to command assent by only its own authority, i. e. by and in proportion to that evidence which it carries with it.

Force of enthusiasm.

§. 3. Upon this occasion I shall take the liberty to consider a third ground of assent, which with some men has the same authority, and is as confidently relied on as either faith or reason; I mean enthusiasm: which laying by reason, would set up revelation without it. Whereby in effect it takes away both reason and revelation, and substitutes in the room of it the ungrounded fancies of a man's own brain, and assumes them for a foundation both of opinion and conduct.

Reason and revelation.

§. 4. Reason is natural revelation, whereby the eternal father of light, and fountain of all knowledge, communicates to mankind that portion of truth which he has laid within the reach of their natural faculties: revelation is natural reason enlarged by a new set of discoveries communicated by God immediately, which reason vouches the truth of, by the testimony and proofs it gives, that they come from God. So that he that takes away reason, to make way for revelation, puts out the light of both, and does much-what the same, as if he would persuade a man to put out his eyes, the better to receive the remote light of an invisible star by a telescope.

Rise of enthusiasm.

§. 5. Immediate revelation being a much easier way for men to establish their opinions, and regulate their conduct, than the tedious and not always successful labour of strict reasoning, it is no wonder that some have been very apt to pretend to revelation, and to persuade themselves that they are under the peculiar guidance of heaven in their actions and opinions, especially in those of them which

they cannot account for by the ordinary methods of knowledge, and principles of reason. Hence we see that in all ages, men, in whom melancholy has mixed with devotion, or whose conceit of themselves has raised them into an opinion of a greater familiarity with God, and a nearer admittance to his favour than is afforded to others, have often flattered themselves with a persuasion of an immediate intercourse with the Deity, and frequent communications from the Divine Spirit. God, I own, cannot be denied to be able to enlighten the understanding, by a ray darted into the mind immediately from the fountain of light; this they understand he has promised to do, and who then has so good a title to expect it as those who are his peculiar people, chosen by him, and depending on him?

Enthusiasm.

§. 6. Their minds being thus prepared, whatever groundless opinion comes to settle itself strongly upon their fancies, is an illumination from the spirit of God, and presently of divine authority: and whatsoever odd action they find in themselves a strong inclination to do, that impulse is concluded to be a call or direction from heaven, and must be obeyed; it is a commission from above, and they cannot err in executing it.

§. 7. This I take to be properly enthusiasm, which, though founded neither on reason nor divine revelation, but rising from the conceits of a warmed or over-weening brain, works yet, where it once gets footing, more powerfully on the persuasions and actions of men, than either of those two, or both together: men being most forwardly obedient to the impulses they receive from themselves; and the whole man is sure to act more vigorously, where the whole man is carried by a natural motion. For strong conceit, like a new principle, carries all easily with it, when got above common sense, and freed from all restraint of reason, and check of reflection, it is heightened into a divine authority, in concurrence with our own temper and inclination.

Enthusiasm mistaken for seeing and feeling.

§. 8. Though the odd opinions and extravagant actions enthusiasm has run men into, were enough to warn them against this wrong principle, so apt to misguide

them both in their belief and conduct; yet the love of something extraordinary, the ease and glory it is to be inspired, and be above the common and natural ways of knowledge, so flatters many men's laziness, ignorance, and vanity, that when once they are got into this way of immediate revelation, of illumination without search, and of certainty without proof, and without examination; it is a hard matter to get them out of it. Reason is lost upon them, they are above it: they see the light infused into their understandings, and cannot be mistaken; it is clear and visible there, like the light of bright sunshine; shows itself, and needs no other proof but its own evidence: they feel the hand of God moving them within, and the impulses of the spirit, and cannot be mistaken in what they feel. Thus they support themselves, and are sure reason hath nothing to do with what they see and feel in themselves: what they have a sensible experience of admits no doubt, needs no probation. Would he not be ridiculous, who should require to have it proved to him that the light shines, and that he sees it? It is its own proof, and can have no other. When the spirit brings light into our minds, it dispels darkness. We see it, as we do that of the sun at noon, and need not the twilight of reason to show it us. This light from heaven is strong, clear, and pure, carries its own demonstration with it; and we may as naturally take a glow-worm to assist us to discover the sun, as to examine the celestial ray by our dim candle, reason.

Enthusiasm how to be discovered.

§. 9. This is the way of talking of these men: they are sure, because they are sure: and their persuasions are right, because they are strong in them. For, when what they say is stripped of the metaphor of seeing and feeling, this is all it amounts to: and yet these similes so impose on them, that they serve them for certainty in themselves, and demonstration to others.

§. 10. But to examine a little soberly this internal light, and this feeling on which they build so much. These men have, they say, clear light, and they see; they have awakened sense, and they feel; this cannot,

they are sure, be disputed them. For when a man says he sees or feels, nobody can deny it him that he does so. But here let me ask: this seeing, is it the perception of the truth of the proposition, or of this, that it is a revelation from God? This feeling, is it a perception of an inclination or fancy to do something, or of the spirit of God moving that inclination? These are two very different perceptions, and must be carefully distinguished, if we would not impose upon ourselves. I may perceive the truth of a proposition, and yet not perceive that it is an immediate revelation from God. I may perceive the truth of a proposition in Euclid, without its being or my perceiving it to be a revelation: nay, I may perceive I came not by this knowledge in a natural way, and so may conclude it revealed, without perceiving that it is a revelation from God; because there be spirits, which, without being divinely commissioned, may excite those ideas in me, and lay them in such order before my mind, that I may perceive their connexion. So that the knowledge of any proposition coming into my mind, I know not how, is not a perception that it is from God. Much less is a strong persuasion, that it is true, a perception that it is from God, or so much as true. But however it be called light and seeing, I suppose it is at most but belief and assurance: and the proposition taken for a revelation, is not such as they know to be true, but take to be true. For where a proposition is known to be true, revelation is needless: and it is hard to conceive how there can be a revelation to any one of what he knows already. If therefore it be a proposition which they are persuaded, but do not know, to be true, whatever they may call it, it is not seeing, but believing. For these are two ways, whereby truth comes into the mind, wholly distinct, so that one is not the other. What I see I know to be so by the evidence of the thing itself: what I believe I take to be so upon the testimony of another: but this testimony I must know to be given, or else what ground have I of believing? I must see that it is God that reveals this to me, or else I see nothing. The question then here is, how do I know that God is the revealer of this to me; that this impres-

sion is made upon my mind by his Holy Spirit, and that therefore I ought to obey it? If I know not this, how great soever the assurance is that I am possessed with, it is groundless; whatever light I pretend to, it is but enthusiasm. For whether the proposition supposed to be revealed, be in itself evidently true, or visibly probable, or by the natural ways of knowledge uncertain, the proposition that must be well grounded, and manifested to be true, is this, that God is the revealer of it, and that what I take to be a revelation is certainly put into my mind by him, and is not an illusion dropped in by some other spirit, or raised by my own fancy. For if I mistake not, these men receive it for true, because they presume God revealed it. Does it not then stand them upon, to examine on what grounds they presume it to be a revelation from God? or else all their confidence is mere presumption: and this light, they are so dazzled with, is nothing but an ignis fatuus that leads them constantly round in this circle; it is a revelation, because they firmly believe it, and they believe it, because it is a revelation.

Enthusiasm fails of evidence, that the proposition is from God.

§. 11. In all that is of divine revelation, there is need of no other proof but that it is an inspiration from God: for he can neither deceive nor be deceived. But how shall it be known that any proposition in our minds is a truth infused by God; a truth that is revealed to us by him, which he declares to us, and therefore we ought to believe? Here it is that enthusiasm fails of the evidence it pretends to. For men thus possessed boast of a light whereby they say they are enlightened, and brought into the knowledge of this or that truth. But if they know it to be a truth, they must know it to be so, either by its own self-evidence to natural reason, or by the rational proofs that make it out to be so. If they see and know it to be a truth, either of these two ways, they in vain suppose it to be a revelation. For they know it to be true the same way, that any other man naturally may know that it is so without the help of revelation. For thus all the truths, of what kind soever, that men uninspired are enlightened with,

came into their minds, and are established there. If they say they know it to be true, because it is a revelation from God, the reason is good: but then it will be demanded how they know it to be a revelation from God. If they say, by the light it brings with it, which shines bright in their minds, and they cannot resist: I beseech them to consider whether this be any more than what we have taken notice of already, viz. that it is a revelation, because they strongly believe it to be true. For all the light they speak of is but a strong, though ungrounded persuasion of their own minds, that it is a truth. For rational grounds from proofs that it is a truth, they must acknowledge to have none; for then it is not received as a revelation, but upon the ordinary grounds that other truths are received: and if they believe it to be true, because it is a revelation, and have no other reason for its being a revelation, but because they are fully persuaded without any other reason that it is true; they believe it to be a revelation, only because they strongly believe it to be a revelation; which is a very unsafe ground to proceed on, either in our tenets or actions. And what readier way can there be to run ourselves into the most extravagant errours and miscarriages, than thus to set up fancy for our supreme and sole guide, and to believe any proposition to be true, any action to be right, only because we believe it to be so? The strength of our persuasions is no evidence at all of their own rectitude: crooked things may be as stiff and inflexible as straight: and men may be as positive and peremptory in errour as in truth. How come else the untractable zealots in different and opposite parties? For if the light, which every one thinks he has in his mind, which in this case is nothing but the strength of his own persuasion, be an evidence that it is from God, contrary opinions have the same title to inspirations; and God will be not only the father of lights, but of opposite and contradictory lights, leading men contrary ways; and contradictory propositions will be divine truths, if an ungrounded strength of assurance be an evidence, that any proposition is a divine revelation.

Firmness of persuasion no proof that any proposition is from God.

§. 12. This cannot be otherwise, whilst firmness of persuasion is made the cause of believing, and confidence of being in the right is made an argument of truth. St. Paul himself believed he did well, and that he had a call to it when he persecuted the Christians, whom he confidently thought in the wrong: but yet it was he, and not they, who were mistaken. Good men are men still, liable to mistakes; and are sometimes warmly engaged in errours, which they take for divine truths, shining in their minds with the clearest light.

Light in the mind, what.

§. 13. Light, true light, in the mind is, or can be nothing else but the evidence of the truth of any proposition; and if it be not a self-evident proposition, all the light it has, or can have, is from the clearness and validity of those proofs, upon which it is received. To talk of any other light in the understanding is to put ourselves in the dark, or in the power of the Prince of darkness, and by our own consent to give ourselves up to delusion to believe a lie. For if strength of persuasion be the light, which must guide us; I ask how shall any one distinguish between the delusions of Satan, and the inspirations of the Holy Ghost? He can transform himself into an angel of light. And they who are led by this son of the morning, are as fully satisfied of the illumination, i. e. are as strongly persuaded, that they are enlightened by the spirit of God, as any one who is so: they acquiesce and rejoice in it, are acted by it: and nobody can be more sure, nor more in the right (if their own strong belief may be judge) than they.

Revelation must be judged of by reason.

§. 14. He therefore that will not give himself up to all the extravagancies of delusion and errour, must bring this guide of his light within to the trial. God, when he makes the prophet, does not unmake the man. He leaves all his faculties in the natural state, to enable him to judge of his inspirations, whether they be of divine original or no. When he illuminates the mind with supernatural light, he does not extinguish that which is

natural. If he would have us assent to the truth of any proposition, he either evidences that truth by the usual methods of natural reason, or else makes it known to be a truth which he would have us assent to, by his authority; and convinces us that it is from him, by some marks which reason cannot be mistaken in. Reason must be our last judge and guide in every thing. I do not mean that we must consult reason, and examine whether a proposition revealed from God can be made out by natural principles, and if it cannot, that then we may reject it: but consult it we must, and by it examine, whether it be a revelation from God or no. And if reason finds it to be revealed from God, reason then declares for it, as much as for any other truth, and makes it one of her dictates. Every conceit that thoroughly warms our fancies must pass for an inspiration, if there be nothing but the strength of our persuasions, whereby to judge of our persuasions: if reason must not examine their truth by something extrinsecal to the persuasions themselves, inspirations and delusions, truth and falsehood, will have the same measure, and will not be possible to be distinguished.

Belief no proof of revelation.

§. 15. If this internal light, or any proposition which under that title we take for inspired, be conformable to the principles of reason, or to the word of God, which is attested revelation, reason warrants it, and we may safely receive it for true, and be guided by it in our belief and actions; if it receive no testimony nor evidence from either of these rules, we cannot take it for a revelation, or so much as for true, till we have some other mark that it is a revelation, besides our believing that it is so. Thus we see the holy men of old, who had revelations from God, had something else besides that internal light of assurance in their own minds, to testify to them that it was from God. They were not left to their own persuasions alone, that those persuasions were from God; but had outward signs to convince them of the author of those revelations. And when they were to convince others, they had a power given them to justify the truth of their commission from heaven, and by

visible signs to assert the divine authority of a message they were sent with. Moses saw the bush burn without being consumed, and heard a voice out of it. This was something besides finding an impulse upon his mind to go to Pharaoh, that he might bring his brethren out of Egypt: and yet he thought not this enough to authorize him to go with that message, till God, by another miracle of his rod turned into a serpent, had assured him of a power to testify his mission, by the same miracle repeated before them, whom he was sent to. Gideon was sent by an angel to deliver Israel from the Midianites, and yet he desired a sign to convince him that this commission was from God. These, and several the like instances to be found among the prophets of old, are enough to show that they thought not an inward seeing or persuasion of their own minds, without any other proof, a sufficient evidence that it was from God; though the scripture does not every where mention their demanding or having such proofs.

§. 16. In what I have said I am far from denying that God can, or doth sometimes enlighten men's minds in the apprehending of certain truths, or excite them to good actions by the immediate influence and assistance of the holy spirit, without any extraordinary signs accompanying it. But in such cases too we have reason and scripture, unerring rules to know whether it be from God or no. Where the truth embraced is consonant to the revelation in the written word of God, or the action conformable to the dictates of right reason or holy writ, we may be assured that we run no risk in entertaining it as such; because though perhaps it be not an immediate revelation from God, extraordinarily operating on our minds, yet we are sure it is warranted by that revelation which he has given us of truth. But it is not the strength of our private persuasion within ourselves, that can warrant it to be a light or motion from heaven; nothing can do that but the written word of God without us, or that standard of reason which is common to us with all men. Where reason or scripture is express for any opinion or action, we may receive it as of divine authority; but it is not the strength of our

own persuasions which can by itself give it that stamp. The bent of our own minds may favour it as much as we please; that may show it to be a fondling of our own, but will by no means prove it to be an offspring of heaven, and of divine original.

CHAP. XX.

Of wrong Assent, or Errour.

Causes of errour.

§. 1. KNOWLEDGE being to be had only of visible and certain truth, errour is not a fault of our knowledge, but a mistake of our judgment, giving assent to that which is not true.

But if assent be grounded on likelihood, if the proper object and motive of our assent be probability, and that probability consists in what is laid down in the foregoing chapters, it will be demanded how men come to give their assents contrary to probability. For there is nothing more common than contrariety of opinions; nothing more obvious than that one man wholly disbelieves, what another only doubts of, and a third stedfastly believes, and firmly adheres to. The reasons whereof, though they may be very various, yet, I suppose, may all be reduced to these four:

1. Want of proofs.
2. Want of ability to use them.
3. Want of will to use them.
4. Wrong measures of probability.

1. Want of proofs.

§. 2. First, by want of proofs, I do not mean only the want of those proofs which are no where extant, and so are no where to be had; but the want even of those proofs which are in being, or might be procured. And thus men want proofs who have not the convenience or opportunity to make experiments and observations themselves tending to the proof of any proposition; nor likewise the convenience to inquire into and collect the testimonies

of others: and in this state are the greatest part of mankind, who are given up to labour, and enslaved to the necessity of their mean condition, whose lives are worn out only in the provisions for living. These men's opportunities of knowledge and inquiry are commonly as narrow as their fortunes; and their understandings are but little instructed, when all their whole time and pains is laid out to still the croaking of their own bellies, or the cries of their children. It is not to be expected that a man, who drudges on all his life in a laborious trade, should be more knowing in the variety of things done in the world, than a pack-horse, who is driven constantly forwards and backwards in a narrow lane, and dirty road, only to market, should be skilled in the geography of the country. Nor is it at all more possible, that he who wants leisure, books, and languages, and the opportunity of conversing with variety of men, should be in a condition to collect those testimonies and observations which are in being, and are necessary to make out many, nay most of the propositions that, in the societies of men, are judged of the greatest moment; or to find out grounds of assurance so great as the belief of the points he would build on them is thought necessary. So that a great part of mankind are, by the natural and unalterable state of things in this world, and the constitution of human affairs, unavoidably given over to invincible ignorance of those proofs on which others build, and which are necessary to establish those opinions: the greatest part of men having much to do to get the means of living, are not in a condition to look after those of learned and laborious inquiries.

Obj. What shall become of those who want them, answered.

§. 3. What shall we say then? Are the greatest part of mankind, by the necessity of their condition, subjected to unavoidable ignorance in those things which are of greatest importance to them? (for of these it is obvious to inquire.) Have the bulk of mankind no other guide but accident, and blind chance, to conduct them to their happiness or misery? Are the current opinions, and licensed guides of every country, sufficient

evidence and security to every man to venture his great concernments on; nay, his everlasting happiness or misery? Or can those be the certain and infallible oracles and standards of truth, which teach one thing in Christendom, and another in Turky? Or shall a poor countryman be eternally happy for having the chance to be born in Italy; or a day-labourer be unavoidably lost, because he had the ill luck to be born in England? How ready some men may be to say some of these things, I will not here examine: but this I am sure, that men must allow one or other of these to be true (let them choose which they please) or else grant, that God has furnished men with faculties sufficient to direct them in the way they should take, if they will but seriously employ them that way, when their ordinary vocations allow them the leisure. No man is so wholly taken up with the attendance on the means of living, as to have no spare time at all to think of his soul, and inform himself in matters of religion. Were men as intent upon this, as they are on things of lower concernment, there are none so enslaved to the necessities of life, who might not find many vacancies that might be husbanded to this advantage of their knowledge.

People hindered from inquiry.

§. 4. Besides those, whose improvements and informations are straitened by the narrowness of their fortunes, there are others whose largeness of fortune would plentifully enough supply books and other requisites for clearing of doubts, and discovering of truth: but they are cooped in close, by the laws of their countries, and the strict guards of those whose interest it is to keep them ignorant, lest, knowing more, they should believe the less in them. These are as far, nay farther from the liberty and opportunities of a fair inquiry, than these poor and wretched labourers we before spoke of. And, however they may seem high and great, are confined to narrowness of thought, and enslaved in that which should be the freest part of man, their understandings. This is generally the case of all those who live in places where care is taken to propagate truth without knowledge: where men are forced, at a venture, to be of the religion

of the country; and must therefore swallow down opinions, as silly people do empirics pills, without knowing what they are made of, or how they will work, and having nothing to do but believe that they will do the cure: but in this are much more miserable than they, in that they are not at liberty to refuse swallowing what perhaps they had rather let alone; or to choose the physician, to whose conduct they would trust themselves.

2. Want of skill to use them.

§. 5. Secondly, those who want skill to use those evidences they have of probabilities; who cannot carry a train of consequences in their heads; nor weigh exactly the preponderancy of contrary proofs and testimonies, making every circumstance its due allowance; may be easily misled to assent to positions that are not probable. There are some men of one, some but of two syllogisms, and no more; and others that can but advance one step farther. These cannot always discern that side on which the strongest proofs lie; cannot constantly follow that which in itself is the more probable opinion. Now that there is such a difference between men, in respect of their understandings, I think nobody, who has had any conversation with his neighbours, will question: though he never was at Westminster-hall, or the Exchange, on the one hand; or at Alms-houses, or Bedlam, on the other. Which great difference in men's intellectuals, whether it rises from any defect in the organs of the body, particularly adapted to thinking; or in the dulness or untractableness of those faculties for want of use; or, as some think, in the natural differences of men's souls themselves; or some, or all of these together; it matters not here to examine: only this is evident, that there is a difference of degrees in men's understandings, apprehensions, and reasonings, to so great a latitude, that one may, without doing injury to mankind, affirm, that there is a greater distance between some men and others, in this respect, than between some men and some beasts. But how this comes about, is a speculation, though of great consequence, yet not necessary to our present purpose.

§. 6. Thirdly, there are another sort of people that want proofs, not because they are out of their reach, but because they will not use them: who, though they have riches and leisure enough, and want neither parts nor other helps, are yet never the better for them. Their hot pursuit of pleasure, or constant drudgery in business, engages some men's thoughts elsewhere: laziness and oscitancy in general, or a particular aversion for books, study and meditation, keep others from any serious thoughts at all: and some out of fear, that an impartial inquiry would not favour those opinions which best suit their prejudices, lives, and designs, content themselves, without examination, to take upon trust what they find convenient and in fashion. Thus most men, even of those that might do otherwise, pass their lives without an acquaintance with, much less a rational assent to, probabilities they are concerned to know, though they lie so much within their view, that to be convinced of them they need but turn their eyes that way. We know some men will not read a letter which is supposed to bring ill news; and many men forbear to cast up their accounts, or so much as think upon their estates, who have reason to fear their affairs are in no very good posture. How men, whose plentiful fortunes allow them leisure to improve their understandings, can satisfy themselves with a lazy ignorance, I cannot tell: but methinks they have a low opinion of their souls, who lay out all their incomes in provisions for the body, and employ none of it to procure the means and helps of knowledge; who take great care to appear always in a neat and splendid outside, and would think themselves miserable in coarse clothes, or a patched coat, and yet contentedly suffer their minds to appear abroad in a pie-bald livery of coarse patches, and borrowed shreds, such as it has pleased chance, or their country-taylor, (I mean the common opinion of those they have conversed with) to clothe them in. I will not here mention how unreasonable this is for men that ever think of a future state, and their concernment in it, which no rational man can avoid to do sometimes: nor shall I take notice what a

3. Want of will to use them.

shame and confusion it is, to the greatest contemners of knowledge, to be found ignorant in things they are concerned to know. But this at least is worth the consideration of those who call themselves gentlemen, that however they may think credit, respect, power and authority, the concomitants of their birth and fortune, yet they will find all these still carried away from them, by men of lower condition, who surpass them in knowledge. They who are blind will always be led by those that see, or else fall into the ditch: and he is certainly the most subjected, the most enslaved, who is so in his understanding. In the foregoing instances, some of the causes have been shown of wrong assent, and how it comes to pass, that probable doctrines are not always received with an assent proportionable to the reasons which are to be had for their probability: but hitherto we have considered only such probabilities, whose proofs do exist, but do not appear to him who embraces the errour.

4. Wrong measures of probability; whereof,

§. 7. Fourthly, there remains yet the last sort, who, even where the real probabilities appear, and are plainly laid before them, do not admit of the conviction, nor yield unto manifest reasons, but do either ἐπέχειν, suspend their assent, or give it to the less probable opinion: and to this danger are those exposed, who have taken up wrong measures of probability; which are,

1. Propositions that are not in themselves certain and evident, but doubtful and false, taken up for principles.

2. Received hypotheses.

3. Predominant passions or inclinations.

4. Authority.

1. Doubtful propositions taken for principles.

§. 8. First, the first and firmest ground of probability is the conformity any thing has to our own knowledge; especially that part of our knowledge which we have embraced, and continue to look on as principles. These have so great an influence upon our opinions, that it is usually by them we judge of truth, and measure probability to that degree, that what is inconsistent with our princi-

ples, is so far from passing for probable with us, that it will not be allowed possible. The reverence borne to these principles is so great, and their authority so paramount to all other, that the testimony not only of other men, but the evidence of our own senses are often rejected, when they offer to vouch any thing contrary to these established rules. How much the doctrine of innate principles, and that principles are not to be proved or questioned, has contributed to this, I will not here examine. This I readily grant, that one truth cannot contradict another: but withal I take leave also to say, that every one ought very carefully to beware what he admits for a principle, to examine it strictly, and see whether he certainly knows it to be true of itself by its own evidence, or whether he does only with assurance believe it to be so upon the authority of others. For he hath a strong bias put into his understanding, which will unavoidably misguide his assent, who hath imbibed wrong principles, and has blindly given himself up to the authority of any opinion in itself not evidently true.

§. 9. There is nothing more ordinary than children's receiving into their minds propositions (especially about matters of religion) from their parents, nurses, or those about them: which being insinuated into their unwary, as well as unbiassed understandings, and fastened by degrees, are at last (equally whether true or false) rivetted there by long custom and education, beyond all possibility of being pulled out again. For men, when they are grown up, reflecting upon their opinions, and finding those of this sort to be as ancient in their minds as their very memories, not having observed their early insinuation, nor by what means they got them, they are apt to reverence them as sacred things, and not to suffer them to be prophaned, touched, or questioned: they look on them as the Urim and Thummim set up in their minds immediately by God himself, to be the great and unerring deciders of truth and falsehood, and the judges to which they are to appeal in all manner of controversies.

§. 10. This opinion of his principles (let them be what they will being once established, in any one's

mind, it is easy to be imagined what reception any proposition shall find, how clearly soever proved, that shall invalidate their authority, or at all thwart with these internal oracles; whereas the grossest absurdities and improbabilities, being but agreeable to such principles, go down glibly, and are easily digested. The great obstinacy that is to be found in men firmly believing quite contrary opinions, though many times equally absurd, in the various religions of mankind, are as evident a proof, as they are an unavoidable consequence, of this way of reasoning from received traditional principles. So that men will disbelieve their own eyes, renounce the evidence of their senses, and give their own experience the lye, rather than admit of any thing disagreeing with these sacred tenets. Take an intelligent Romanist, that, from the first dawning of any notions in his understanding, hath had this principle constantly inculcated, viz. that he must believe as the church (i. e. those of his communion) believes, or that the pope is infallible; and this he never so much as heard questioned, till at forty or fifty years old he met with one of other principles: how is he prepared easily to swallow, not only against all probability, but even the clear evidence of his senses, the doctrine of transubstantiation? This principle has such an influence on his mind, that he will believe that to be flesh which he sees to be bread. And what way will you take to convince a man of any improbable opinion he holds, who, with some philosophers, hath laid down this as a foundation of reasoning, that he must believe his reason (for so men improperly call arguments drawn from their principles) against his senses? Let an enthusiast be principled, that he or his teacher is inspired, and acted by an immediate communication of the divine spirit, and you in vain bring the evidence of clear reasons against his doctrine. Whoever, therefore, have imbibed wrong principles, are not, in things inconsistent with these principles, to be moved by the most apparent and convincing probabilities, till they are so candid and ingenuous to themselves, as to be persuaded to examine even those very principles, which many never suffer themselves to do.

§. 11. Secondly, next to these are men whose understandings are cast into a mould, and fashioned just to the size of a received hypothesis. The difference between these and the former is, that they will admit of matter of fact, and agree with dissenters in that; but differ only in assigning of reasons and explaining the manner of operation. These are not at that open defiance with their senses, with the former: they can endure to hearken to their information a little more patiently; but will by no means admit of their reports in the explanation of things; nor be prevailed on by probabilities, which would convince them that things are not brought about just after the same manner that they have decreed within themselves that they are. Would it not be an insufferable thing for a learned professor, and that which his scarlet would blush at, to have his authority of forty years standing, wrought out of hard rock Greek and Latin, with no small expence of time and candle, and confirmed by general tradition and a reverend beard, in an instant overturned by an upstart novelist? Can any one expect that he should be made to confess, that what he taught his scholars thirty years ago, was all errour and mistake; and that he sold them hard words and ignorance at a very dear rate? What probabilities, I say, are sufficient to prevail in such a case? And who ever by the most cogent arguments will be prevailed with to disrobe himself at once of all his old opinions, and pretences to knowledge and learning, which with hard study he hath all his time been labouring for; and turn himself out stark naked, in quest afresh of new notions? All the arguments that can be used, will be as little able to prevail, as the wind did with the traveller to part with his cloke, which he held only the faster. To this of wrong hypothesis may be reduced the errours that may be occasioned by a true hypothesis, or right principles, but not rightly understood. There is nothing more familiar than this. The instances of men contending for different opinions, which they all derive from the infallible truth of the scripture, are an undeniable proof of it. All that call themselves Christians allow the text, that

2. Received hypotheses.

says, μετανοεῖτε, to carry in it the obligation to a very weighty duty. But yet how very erroneous will one of their practices be, who, understanding nothing but the French, take this rule with one translation to be "repentez vous," repent; or with the other, "faitiez penitence," do penance!

3. Predominant passions.

§. 12. Thirdly, probabilities, which cross men's appetites and prevailing passions, run the same fate. Let ever so much probability hang on one side of a covetous man's reasoning, and money on the other; it is easy to foresee which will outweigh. Earthly minds, like mud-walls, resist the strongest batteries: and though perhaps sometimes the force of a clear argument may make some impression, yet they nevertheless stand firm, and keep out the enemy truth, that would captivate or disturb them. Tell a man, passionately in love, that he is jilted; bring a score of witnesses of the falsehood of his mistress, it is ten to one but three kind words of hers shall invalidate all their testimonies, "Quod volumus, facile credimus;" What suits our wishes, is forwardly believed; is, I suppose, what every one hath more than once experimented: and though men cannot always openly gainsay or resist the force of manifest probabilities that make against them, yet yield they not to the argument. Not but that it is the nature of the understanding constantly to close with the more probable side; but yet a man hath a power to suspend and restrain its inquiries, and not permit a full and satisfactory examination, as far as the matter in question is capable, and will bear it to be made. Until that be done, there will be always these two ways left of evading the most apparent probabilities.

The means of evading probabilities: 1. Supposed fallacy.

§. 13. First, that the arguments being (as for the most part they are) brought in words, there may be a fallacy latent in them: and the consequences being, perhaps, many in train, they may be some of them incoherent. There are very few discourses so short, clear and consistent, to which most men may not, with satisfaction enough to themselves, raise this doubt; and from whose conviction they may not, without reproach

of disingenuity or unreasonableness, set themselves free with the old reply, "non persuadebis, etiamsi persuaseris;" Though I cannot answer, I will not yield.

2. Supposed arguments for the contrary.

§. 14. Secondly, manifest probabilities may be evaded, and the assent withheld upon this suggestion, that I know not yet all that may be said on the contrary side. And therefore though I be beaten, it is not necessary I should yield, not knowing what forces there are in reserve behind. This is a refuge against conviction so open and so wide, that it is hard to determine, when a man is quite out of the verge of it.

What probabilities determine the assent.

§. 15. But yet there is some end of it; and a man having carefully inquired into all the grounds of probability and unlikeliness, done his utmost to inform himself in all particulars fairly, and cast up the sum total on both sides; may in most cases come to acknowledge, upon the whole matter, on which side the probability rests: wherein some proofs in matter of reason, being suppositions upon universal experience, are so cogent and clear; and some testimonies in matter of fact so universal; that he cannot refuse his assent. So that, I think, we may conclude, that in propositions, where though the proofs in view are of most moment, yet there are sufficient grounds to suspect that there is either fallacy in words, or certain proofs as considerable to be produced on the contrary side; there assent, suspense, or dissent, are often voluntary actions: but where the proofs are such as make it highly probable, and there is not sufficient ground to suspect, that there is either fallacy of words (which sober and serious consideration may discover) nor equally valid proofs, yet undiscovered, latent on the other side (which also the nature of the thing may, in some cases, make plain to a considerate man) there, I think, a man, who has weighed them, can scarce refuse his assent to the side, on which the greater probability appears. Whether it be probable, that a promiscuous jumble of printing letters should often fall into a method and order, which should stamp on paper a coherent discourse; or that a blind fortuitous concourse of atoms,

not guided by an understanding agent, should frequently constitute the bodies of any species of animals: in these and the like cases, I think, nobody that considers them can be one jot at a stand which side to take, nor at all waver in his assent. Lastly, when there can be no supposition (the thing in its own nature indifferent, and wholly depending upon the testimony of witnesses) that there is as fair testimony against, as for the matter of fact attested; which by inquiry is to be learned, v. g. whether there was one thousand seven hundred years ago such a man at Rome as Julius Cæsar: in all such cases, I say, I think it is not in any rational man's power to refuse his assent; but that it necessarily follows, and closes with such probabilities. In other less clear cases, I think, it is in man's power to suspend his assent; and perhaps content himself with the proofs he has, if they favour the opinion that suits with his inclination or interest, and so stop from farther search. But that a man should afford his assent to that side, on which the less probability appears to him, seems to me utterly impracticable, and as impossible, as it is to believe the same thing probable and improbable at the same time.

Where it is in our power to suspend it.

§. 16. As knowledge is no more arbitrary than perception; so, I think, assent is no more in our power than knowledge. When the agreement of any two ideas appears to our minds, whether immediately, or by the assistance of reason, I can no more refuse to perceive, no more avoid knowing it, than I can avoid seeing those objects which I turn my eyes to, and look on in day-light: and what upon full examination I find the most probable, I cannot deny my assent to. But though we cannot hinder our knowledge, where the agreement is once perceived, nor our assent, where the probability manifestly appears upon due consideration of all the measures of it: yet we can hinder both knowledge and assent, by stopping our inquiry, and not employing our faculties in the search of any truth. If it were not so, ignorance, errour, or infidelity could not in any case be a fault. Thus in some cases we can prevent or suspend our assent; but can a man, versed in modern or ancient history, doubt

whether there is such a place as Rome, or whether there was such a man as Julius Cæsar? Indeed there are millions of truths, that a man is not, or may not think himself concerned to know; as whether our king Richard the Third was crooked, or no; or whether Roger Bacon was a mathematician, or a magician. In these and such-like cases, where the assent one way or other is of no importance to the interest of any one; no action, no concernment of his, following or depending thereon; there it is not strange, that the mind should give itself up to the common opinion, or render itself to the first comer. These and the like opinions are of so little weight and moment, that, like motes in the sun, their tendencies are very rarely taken notice of. They are there, as it were, by chance, and the mind lets them float at liberty. But where the mind judges that the proposition has concernment in it; where the assent or not assenting is thought to draw consequences of moment after it, and good and evil to depend on choosing or refusing the right side; and the mind sets itself seriously to inquire and examine the probability; there, I think, it is not in our choice to take which side we please, if manifest odds appear on either. The greater probability, I think, in that case will determine the assent: and a man can no more avoid assenting, or taking it to be true, where he perceives the greater probability, than he can avoid knowing it to be true, where he perceives the agreement or disagreement of any two ideas.

If this be so, the foundation of errour will lie in wrong measures of probability; as the foundation of vice in wrong measures of good.

§. 17. Fourthly, the fourth and last wrong measure of probability I shall take notice of, and which keeps in ignorance or errour more people than all the other together, is that which I mentioned in the foregoing chapter; I mean, the giving up our assent to the common received opinions, either of our friends or party, neighbourhood or country. How many men have no other ground for their tenets, than the supposed honesty, or learning, or number, of those of the same profession? As if honest or bookish men could not

4. Authority.

err, or truth were to be established by the vote of the multitude: yet this with most men serves the turn. The tenet has had the attestation of reverend antiquity, it comes to me with the passport of former ages, and therefore I am secure in the reception I give it: other men have been, and are of the same opinion (for that is all is said) and therefore it is reasonable for me to embrace it. A man may more justifiably throw up cross and pile for his opinions, than take them up by such measures. All men are liable to errour, and most men are in many points, by passion or interest, under temptation to it. If we could but see the secret motives that influence the men of name and learning in the world, and the leaders of parties, we should not always find that it was the embracing of truth for its own sake, that made them espouse the doctrines they owned and maintained. This at least is certain, there is not an opinion so absurd, which a man may not receive upon this ground. There is no errour to be named, which has not had its professors: and a man shall never want crooked paths to walk in, if he thinks that he is in the right way, wherever he has the footsteps of others to follow.

Men not in so many errours as imagined.

§. 18. But, notwithstanding the great noise is made in the world about errours and opinions, I must do mankind that right, as to say there are not so many men in errours and wrong opinions, as is commonly supposed. Not that I think they embrace the truth: but indeed, because concerning those doctrines they keep such a stir about, they have no thought, no opinion at all. For if any one should a little catechise the greatest part of the partizans of most of the sects in the world, he would not find, concerning those matters they are so zealous for, that they have any opinions of their own: much less would he have reason to think, that they took them upon the examination of arguments, and appearance of probability. They are resolved to stick to a party, that education or interest has engaged them in; and there, like the common soldiers of an army, show their courage and warmth as their leaders direct, without ever examining or so much as knowing the cause they contend

for. If a man's life shows, that he has no serious regard for religion; for what reason should we think, that he beats his head about the opinions of his church, and troubles himself to examine the grounds of this or that doctrine? It is enough for him to obey his leaders, to have his hand and his tongue ready for the support of the common cause, and thereby approve himself to those, who can give him credit, preferment or protection in that society. Thus men become professors of, and combatants for those opinions they were never convinced of, nor proselytes to; no, nor ever had so much as floating in their heads: and though one cannot say, there are fewer improbable or erroneous opinions in the world than there are; yet it is certain, there are fewer that actually assent to them, and mistake them for truth, than is imagined.

CHAP. XXI.

Of the Division of the Sciences.

§. 1. ALL that can fall within the compass of human understanding, being either, first, the nature of things as they are in themselves, their relations, and their manner of operation: or, secondly, that which man himself ought to do, as a rational and voluntary agent, for the attainment of any end, especially happiness: or, thirdly, the ways and means, whereby the knowledge of both the one and the other of these is attained and communicated: I think, science may be divided properly into these three sorts. Three sorts.

§. 2. First, the knowledge of things, as they are in their own proper beings, their constitution, properties and operations; whereby I mean not only matter and body, but spirits also, which have their proper natures, constitutions, and operations, as well as bodies. This, in a little more enlarged sense of the word, I call φυσικὴ, or natural philosophy. The end of this is bare speculative truth; and whatsoever can 1. Physica.

afford the mind of man any such, falls under this branch, whether it be God himself, angels, spirits, bodies, or any of their affections, as number, and figure, &c.

2. Practica. §. 3. Secondly, Πρακτικὴ, the skill of right applying our own powers and actions, for the attainment of things good and useful. The most considerable under this head is ethics, which is the seeking out those rules and measures of human actions, which lead to happiness, and the means to practise them. The end of this is not bare speculation, and the knowledge of truth; but right, and a conduct suitable to it.

Σημειωτικὴ. §. 4. Thirdly, the third branch may be called Σημειωτικὴ, or the doctrine of signs, the most usual whereof being words, it is aptly enough termed also Λογικὴ, logic; the business whereof is to consider the nature of signs, the mind makes use of for the understanding of things, or conveying its knowledge to others. For since the things the mind contemplates are none of them besides itself, present to the understanding, it is necessary that something else, as a sign or representation of the thing it considers, should be present to it; and these are ideas. And because the scene of ideas that makes one man's thoughts, cannot be laid open to the immediate view of another, nor laid up any where but in the memory, a no very sure repository; therefore to communicate our thoughts to one another, as well as record them for our own use, signs of our ideas are also necessary. Those which men have found most convenient, and therefore generally make use of, are articulate sounds. The consideration then of ideas and words, as the great instruments of knowledge, makes no despicable part of their contemplation, who would take a view of human knowledge in the whole extent of it. And perhaps if they were distinctly weighed, and duly considered, they would afford us another sort of logic and critic, than what we have been hitherto acquainted with.

This is the first division of the objects of knowledge. §. 5. This seems to me the first and most general, as well as natural division of the objects of our understanding. For a man can employ his thoughts about nothing, but either the contemplation of things them-

selves for the discovery of truth; or about the things in his own power, which are his own actions, for the attainment of his own ends; or the signs the mind makes use of both in the one and the other, and the right ordering of them for its clearer information. All which three, viz. things as they are in themselves knowable; actions as they depend on us, in order to happiness; and the right use of signs in order to knowledge, being toto cœlo different, they seemed to me to be the three great provinces of the intellectual world, wholly separate and distinct one from another.

THE END OF THE ESSAY OF HUMAN UNDERSTANDING.

A

DEFENCE

OF

MR. LOCKE's OPINION

CONCERNING

PERSONAL IDENTITY.

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THE candid author of the late essay upon personal identity cannot justly be offended with any attempt to explain and vindicate Mr. Locke's hypothesis, if it is carried on in the same spirit, though it should be attended with the overthrow of some of his own favourite notions; since he owns that it is of consequence to form right opinions on this point: which was indeed once deemed an important one, how little soever such may be regarded now-a-days. I shall proceed therefore, without farther apology, to settle the terms of this question, and endeavour to state it so as to bring matters to a short and clear determination.

Now the word person, as is well observed by Mr. Locke (the distinguishing excellence of whose writings consists in sticking close to the point in hand, and striking out all foreign and impertinent considerations) is properly a forensic term, and here to be used in the strict forensic sense, denoting some such quality or modification in man as denominates him a moral agent, or an accountable creature; renders him the proper subject of laws, and a true object of rewards or punishments. When we apply it to any man, we do not treat of him absolutely, and in gross; but under a particular relation or precision: we do not comprehend or concern ourselves about the several inherent properties which accompany him in real existence, which go to the making up the whole complex notion of an active and intelligent being; but arbitrarily abstract one single quality

or mode from all the rest, and view him under that distinct precision only which points out the idea above-mentioned, exclusive of every other idea that may belong to him in any other view, either as substance, quality or mode. And therefore the consideration of this same quality, or qualification, will not be altered by any others of which he may be possessed; but remains the same whatever he shall consist of besides: whether his soul be a material or immaterial substance, or no substance at all, as may appear from examining the import of these pronouns, I, thou, he, &c. [the grammatical meaning of such words generally pointing out the true origin of our ideas primarily annexed to them] which both in their original sense and common acceptation are purely personal terms, and as such lead to no farther consideration either of soul or body; nay, sometimes are distinguished from both, as in the following line,

> Linquebant dulces animas, aut ægra, trahebant
> Corpora *.

An enquiry after the identity of such person will be, whether at different times he is, or how he can be, and know himself to be the same in that respect, or equally subjected to the very same relations and consequent obligations which he was under formerly, and in which he still perceives himself to be involved, whenever he reflects upon himself and them. This we shall find to consist in nothing more, than his becoming sensible at different times of what he had thought or done before: and being as fully convinced that he then thought or did it, as he now is of his present thoughts, acts, or existence.

Beyond this we neither can, nor need go for evidence in any thing; this, we shall soon see, is the clear and only medium through which distant things can be discovered and compared together; which at the same time sufficiently ascertains and establishes their several natures and realities respectively; so far as they relate to our-

* See Locke on 1 Cor. xv. 53.

selves and to each other: or if this should not be esteemed sufficient to that end, we shall find, in the last place, that there is nothing else left for it. This distinct consciousness of our past actions, from whence arise all the ideas of merit and demerit, will most undoubtedly be regarded with the strictest exactness in foro divino; and indeed has its due weight in foro humano, whenever it can be with certainty determined: wherever this appears to be wanting, all judicial proceedings are at an end. How plain soever any criminal act were, the man would now-a-days be acquitted from guilt in the commission of it, and discharged from the penalties annexed to such fact, could it at the same time be as plainly made out, that he was incapable of knowing what he did, or is now under a like incapacity of recollecting it. And it would be held a sufficient reason for such acquittal, that the punishment, or persecution of a creature in these circumstances, could not answer the end proposed by society in punishment, viz. the prevention of evil, the only end that I know of, which can justify punishments in any case. The reason then why such a plea has usually so small regard paid to it in courts of justice, is, I apprehend, either the difficulty of having this incapacity proved with the same clearness that the fact itself is established; or the common maxim that one crime, or criminal indisposition, is not admissible in excuse for another; as in cases of drunkenness, violent passion, killing or maiming men by mistake when one is engaged in an unlawful pursuit, &c. Or in some of these cases perhaps men are punished for the murders, &c. not because they possibly may be conscious of them, and yet that consciousness not appear; but that such evils may be more effectually prevented by striking at the remoter cause, i.e. exciting a salutary terrour of those confessedly evil practices and habits, which are often found to terminate in such fatal effects. A kind of injustice is here indeed committed by society, which we have no reason to suppose will be admitted in foro divino, and some worse instances may be seen in our statute books. By the 23 of Hen. 8. a man becoming lunatic after an act of treason shall be liable to be arraigned, tried, and exe-

cuted. But Hale * in his P. C. says, That if a traitor becomes non compos before conviction he shall not be arraigned; if after conviction, he shall not be executed: and Hawkins † observes the same concerning those who have committed any capital offences.

In human courts, which cannot always dive into the hearts of men and discover the true springs of action, nor consequently weigh the effects and operations of each in an equal balance: in this state of ignorance and uncertainty, such a notorious indisposition as that of drunkenness, v g. being generally a great fault in itself, is seldom allowed in extenuation of such others as are committed under its influence; nor indeed does it, I believe, often produce any new, materially different trains of thinking, or totally obliterate the old ones; but where this is really so, the Deity would make just abatement for such defect or disability, as was at the time both unconquerable and unavoidable: nor can we properly impute actions consequent upon any real disorder of the rational faculties, howsoever that disorder might have been contracted; and therefore all animadversions upon them must be in vain: nor is a man punishable for any thing beside the bare act of contracting such disorder, or for the original cause of this disability, how great or durable soever; the dangerous consequences of which he did, or might foresee. As is the case in some other confirmed habits, viz. that of swearing, &c. which often operate mechanically and unperceived, and in which therefore all the moral turpitude (or what is so accounted) arising from them, never can reach beyond the fountain head from whence they are derived, and from which all the effects of them naturally, and even necessarily flow. We must therefore conclude in general, that a person's guilt is estimated according to his past and present consciousness of the offence, and of his having been the author of it. Nor is it merely his having forgotten the thing, but his having so far lost the notion of it out of his mind, that how frequently soever, or in what forcible manner soever, it may be pre-

* Hale P. C. 10. † Hawk. P. C. c.

sented to him again, he lies under an utter incapacity of becoming sensible and satisfied that he was ever privy to it before, which is affirmed to render this thing really none of his, or wholly exculpate him when called to answer for it. Suppose this same consciousness to return, his accountableness (call it personality, or what you please) will return along with it: that is, the infliction of evil upon him will now answer some purpose, and therefore he must be considered as now liable to it. Thus some wholly lose the use of their intellectual faculties for a time, and recover them at intervals. In such cases they are considered as punishable by laws, and so declared by juries, in proportion to the probability of their being conscious of the fact. Others lie under a partial deprivation of some one faculty for certain periods, while they continue to enjoy the rest in tolerable perfection. I knew a learned man, who was said to recollect with ease subjects upon which he had written, or any others that had been discussed before the last ten or fifteen years; could reason freely, and readily turn to the authors he had read upon them; but take him into the latter part of his life, and all was blank; when any late incidents were repeated to him, he would only stare at you, nor could he be made sensible of any one modern occurrence, however strongly represented to him. Was this man equally answerable for all transactions within the last period of his life, as for those in the first? Or if he could have been made sensible of the latter part, but had irrecoverably lost the former; could that former part have been in like manner imputed to him? Surely not. And the reason plainly is, because society could find no advantage from considering him as accountable in either case. Which shows personality to be solely a creature of society, an abstract consideration of man, necessary for the mutual benefit of him and his fellows; i. e. a mere forensic term; and to inquire after its criterion or constituent, is to inquire in what circumstances societies or civil combinations of men have in fact agreed to inflict evil upon individuals, in order to prevent evils to the whole body from any irregular member. Daily experience shows, that they always

make consciousness of the fact a necessary requisite in such punishment, and that all inquiry relates to the probability of such consciousness. The execution of divine justice must proceed in the same manner. The Deity inflicts evil with a settled view to some end; and no end worthy of him can be answered by inflicting it as a punishment, unless to prevent other evils. Such end may be answered, if the patient is conscious, or can be made conscious of the fact, but not otherwise. And whence then does this difference in any one's moral capacity arise, but from that plain diversity in his natural one? from his absolute irretrievable want of consciousness in one case, and not in the other? Suppose now that one in the former condition kills a man; that he, or some part of what we call him, was ever so notoriously the instrument, or occasion of that death; yet if he was either then insensible of the fact, or afterwards became so, and so continued: Would he be any more guilty of murder, than if that death had been occasioned by another person? since at that time he was truly such, or at least is so now, notwithstanding that most people might be apt to judge him still the same, from a sameness in outward circumstances (which generally supply the best means men have of judging) from his shape, mien, or appearance; though these often differ widely from the internal constitution, yet are as often mistaken for it; and this accordingly thought and spoke of with little more philosophical propriety, than when we, in the vulgar phrase, describe a man's condition by saying, We would not be in his coat.

Suppose one then in the situation above-mentioned; could any pains, think you, inflicted on him suit the idea, or answer the ends of punishment, either with regard to himself or others, farther than mere show and delusion? Rewards and punishments are evidently instituted for the benefit of society, for the encouragement of virtue, or suppression of vice, in the object thus rewarded or punished, and in the rest of the community; but what tendency to the above purposes can either of these have, if dispensed to one who is not so far himself as to become conscious of having done any thing to

deserve it? What instruction is conveyed to him? What admonition to such others, as are duly acquainted with the whole of the case, and see every circumstance thus grossly misapplied? And as in these cases, laws only can define the circumstances in which a man shall be treated as accountable, they only can create guilt, i. e. guilt also is a forensic term, or a mode of considering any action, which in its essence implies knowledge of a law, offence against that law, and a sense of having offended against it; i. e. an after consciousness of the fact; without which after consciousness, punishment would be of little avail, as it would neither serve to guard the man himself against a like delinquency, nor tend to the warning of others, who by such inflictions would openly perceive that they might chance to suffer pain, without being able to assign a reason for it.—Thus may personality be extended or contracted, and vary in various respects, times, and degrees, and thereby become liable to great confusion, in our applying it to various subjects; yet is the ground and foundation of it fixed; and when once discovered, its consequences are not less so, both before God and man.

Abstract, general ideas (of which this is an eminent one) are alone productive of certain, uniform, and universal knowledge: Thus qualities of a certain kind, when abstracted, or taken apart from nature, and set up for common standards, are so far independent as to become absolute, unmixed, or perfect in themselves *, however different they may be found in their respective concretes. Thus goodness, justice, guilt, merit, &c. in general, are ever the same goodness, &c. all the world over, however imperfectly they may appear in any particular subjects, times, and places. In the same manner as a line, or the abstract consideration of length without thickness or breadth; the consideration of surface, i. e. length and breadth without thickness, must be the same, in all intelligent beings of like faculties with us, though the natural substances which suggest them may differ

* Note 10. to King's Origin of Evil. Rem. k.

with an endless variety. Let personality answer to a line or surface; let the substances it is predicated of, like the infinite variety of solids in nature, (with their appendages, heat, cold, colour, &c.) in which length and breadth are found, vary as you please, still the abstract ideas of line and surface, and therefore of person, will remain invariable. And thus propositions formed out of these general ideas contain certain truths, that are in one sense external and immutable, as depending on no precarious existences whatever. Being merely what we ourselves make them, they must continue the same while the same number of such ideas continue joined together, and appear the same to every intelligent being that contemplates them *. They do not stand in need (I say) of an objective reality, or the existence of any external things in full conformity to them, since we here consider things no farther than as coming up to these original standards, settled in the minds of men; or as capable of being included in such measures as are applied to determine their precise quantity, quality, &c. we are ranking them under a certain species or sort, hence called their essence, which entitles them to the name descriptive of it, as is sufficiently explained by Mr. Locke. They want therefore nothing more to establish their reality, than to be consistently put together, so as may distinguish them from others that are merely chimerical, and qualify them for the admission of any real beings that may occur: Thus, not only the instance of a triangle so frequently used by Mr. Locke, but every thorem in Euclid, may be ranked among the abstract considerations of quantity, apart from all real existence, which seldom comes up to it: As it may be justly questioned whether any triangle or circle, as defined by him, ever existed in nature, i. e. existed so that all the lines of the triangle were right ones, or all the lines drawn from the centre to the circumference equal. These ideas presuppose† no one being in particular, nay imply nothing more than a proper subject of inbut w
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* See the first note to Abp. King's Origin of Evil.

† Vide Bp. Butler's Diss. on Personal Identity.

quiry (as was said above) or some such creature as is either actually endowed with, or at least susceptible of these specific qualities, or modes, which furnish matter for the whole tribe of abstractions daily made and preserved by such terms as usually serve to denote them; whether appellatives, in order to distinguish men in their several stations and relations, private or public; to describe their character or conduct, office, &c. as parent, patriot, king, &c. or such more general, technical ones, as paternity, patriotism, kingship, &c. the nature, end, and use, of all which abstractions, with their names, are well enough understood, and would not easily be mistaken in affairs of common life, which are happily less liable to such kind of subtile refinements, as have brought metaphysical speculations into that contempt under which they have long laboured. In short, of these same abstractions consist all general terms and theorems of every science; and the truth and certainty contained in them, when applied to morals or theology, is no less determinate than in other sciences; it is equally capable of strict demonstration, as Mr. Locke observes, and equally applicable to full as useful and important purposes: the great general truths, I say, arising out of these general essences, or entities, (as they are sometimes called) are all clear, constant, and invariable in themselves, though the names in which such a collection of ideas should be preserved, are often through the poverty and imperfection of language rendered extremely vague and uncertain in each writer or speaker, and the ideas formed by them in other men's minds (which are their proper archetypes, and a conformity to which alone makes them right or wrong, truly or untruly applied) thereby become no less frequently confused and indeterminate. Thus, in the case before us, the word person is often used to signify the whole aggregate of a rational being, including both the very imperfect idea, if it be any idea at all, of substance, and its several properties, [as is the common way] or taking all the essential qualities together, [which properly constitute the substance of any thing*] with several of their modes.

*, See the first note to King, and the authors there cited.

As when speaking of any one, we include soul, body, station, and other circumstances, and accordingly style him a wise, worthy person; a tall, comely; a rich, great one, &c. where person in a lax, popular sense signifies as much as man. In which popular sense Mr. Locke manifestly takes the word, when he says, it "stands for "a thinking intelligent being, that has reason and "reflection, and can consider itself as itself, the same "thinking being, in different times and places." B. 2. C. 27. § 9. But when the term is used more accurately and philosophically, it stands for one especial property of that thing or being, separated from all the rest that do or may attend it in real existence, and set apart for ranging such beings into distinct classes, (as hinted above) and considering them under distinct relations and connexions, which are no less necessary to be determined in life, and which should therefore have their proper and peculiar demonstration. And thus sameness of person stands to denote, not what constitutes the same rational agent, though it always is predicated of such; but we consider his rationality so far only, as it makes him capable of knowing what he does and suffers, and on what account, and thereby renders him amenable to justice for his behaviour, as above-mentioned.

Whatever ingredients therefore of different kinds go to the composition, what other particulars, whether mental or corporeal, contribute to the formation of this intelligent being, these make no part of our inquiry; which, I beg leave to repeat it again, is not what enters into the natural constitution of a thing, but what renders it so far a moral one, and is the sine quâ non of its being justly chargeable with any of its past actions, here or hereafter: Or, in other words, it does not affect the reality or the permanency of such intelligent beings, but only regulates and retains those beings under such a moral relation, as makes them properly accountable to some superior for their course of action. It is an artificial distinction, yet founded in the nature, but not the whole nature of man, who must have many other essential powers and properties to subsist as man, and even to support this in question; but none other, we say, that

can affect, or in any wise alter his condition in the above-named respect, and therefore none that come with propriety into the present consideration.

This is all the mystery of the matter, which has puzzled so many ingenious writers, and been so marvellously mistaken by such as are not sufficiently acquainted with the doctrine of abstractions, or are misled by terms of art, instead of attending to the precise ideas which these ought to convey, and would always convey if they were but carefully and steadily applied; for want of which proper application, men of genius and good sense have fallen into such egregious trifling*, as serves only to disturb this beyond most other parts of science, and has filled the above celebrated question with a multitude of quibbles, which Mr. Locke's clear and copious answers to his several opponents might, one would have hoped, have most effectually prevented; but which are subsisting to this very day, to the no small mortification of all sincere lovers of truth, and admirers of that able defender of it. And I have been the larger on this head of general words and notions, which have so close a con-

* An extraordinary instance of this kind is to be met with in Bishop Berkeley, which he calls a demonstration of the point; where the supposed union of A and C, not with the whole of B, but with some different parts of which B consists, will hardly make them one with each other:——But this famous demonstration may be ranked among some others of the same sort, and safely trusted with the reader: 'Let us suppose that a person hath ideas, and is conscious during a certain space of time, which we will divide into three equal parts, whereof the latter terms are marked by the letters A, B, C. In the first part of time the person gets a certain number of ideas, which are retained in A; during the second part of time he retains one half of his old ideas, and loseth the other half, in place of which he acquires as many new ones: so that in B his ideas are half old and half new. And in the third part we suppose him to lose the remainder of the ideas acquired in the first, and to get new ones in their stead, which are retained in C, together with those acquired in the second part of time.—The persons in A and B are the same, being conscious of common ideas by the supposition. The person in B is (for the same reason), one of the same with the person in C. Therefore the person in A is the same with the person in C, by that undoubted axiom, quæ conveniunt uni tertio conveniunt inter se. But the person in C hath no idea in common with the person in A. Therefore personal identity doth not consist in consciousness.' Alciphron, v. 2, p. 160.

nexion with each other, and with the present question, as the subject perhaps is not sufficiently explained by Mr. Locke in any one place of his admirable essay, though it occurs pretty often: and since the several properties or attributes of these same abstract ideas are still so miserably misunderstood, as to have their very existence disputed, probably because he has been pleased to set it forth in a manner somewhat paradoxical. Though this word existence also is a term often misapplied, as if nothing could really exist which was not an object of the senses: Whereas in these, and several other ideas, as has been often observed, their esse is percipi.

Again, We are often misled on the other hand by imagining what things are in themselves (as we usually term it) or in their internal essences; instead of considering them as they appear, and stand related to us; or according to the ideas that are obviously suggested by them; which ideas only should be the objects of our contemplation, (since we really perceive nothing else) and ought always to regulate our inquiry into things, as these are the sole foundation of all our knowledge concerning them, of all that can with safety direct, or be of service to us.

But to return to our author. The property then, or quality, or whatever he chooses to call it, which, in his own words, renders men "sensible that they are the same" in some respects, is in Mr. Locke's sense, in the legal, and in common sense, that which so far makes them such, or brings them into the same relative capacity of being ranked among moral, social creatures, and of being treated accordingly, for several obvious purposes in social life. This consciousness, I say, of being thus far ourselves, is what, in Mr. Locke's language, makes us so. In this case, as in some other ideal objects, to be, and be perceived, is really the same, and what this author calls the sign, coincides with the thing signified. Whether any intelligent being is at present what he is in every respect, wants no proof; of this he has self-evident intuitive knowledge *, and can go no higher. And whether he now is what he was once be-

* See note 10. to King. Rem. a.

fore, in this single article of personality, can only be determined by his now being sensible of what he then thought and did, which is equally self-evident; and thus again, consciousnes at the same time, and by the same means, that it convinces him of this, does likewise constitute him such to all ends and purposes whatsoever.

Well then, having examined a little into the nature, and enumerated some few properties of an abstract idea in general, and shown that this particular one before us can be nothing more, we may find perhaps that however fluctuating and changeful this account may be judged to render personality; how much soever it may fall short of some sublime systems about purely immaterial substances, and perfectly independent principles of thought; yet there is no help for these changes in the seat of personality; since, in the last place, we know of nothing more stable and permanent in our constitution that has the least pretence to settle and support it. All parts of the body are to a certain degree in perpetual flux, nor is any one of them, that we are acquainted with, concerned in the present case more than another. As to the mind, both its cogitative and active powers are suspended (whether they be so or not is a matter of fact, in which experience only, and not subtile argumentations drawn from the nature of an unknown, perhaps imaginary, essence ought to decide) during sound sleep: Nay, every drowsy nod (as Mr. Locke expresses it) must shake their doctrine, who maintain that these powers are incessantly employed. Call then a resuscitation or revival of these powers, when we awake, another beginning of their existence, a new creation; and argue against the possibility of any such interruption or annihilation of them, as long as you please; yet that it is matter of fact, and nightly experience, and capable of as good proof as a negative proposition will admit, is made out sufficiently by the above-named excellent writer. This, if properly attended to, and pursued through its genuine consequences, would go a great way towards unfolding the true nature of the human mind, which many thoughtful men seem yet very little ac-

quainted with, and very much afraid to examine*. And while this disposition holds, we can never expect to come at the original core of all those corruptions that have infected this branch of philosophy, and extended

* Will not the least hint of this doctrine, say they, give great offence, by appearing to undermine the settled distinction between soul and body, which is so much countenanced and confirmed in scripture?—Does it not tend to disturb common apprehensions, and confound both the sense and language of mankind?

Answ. 1. If this doctrine be true, and a truth of some importance, it will surely stand the test, and ought to be supported, against all such inconclusive argumentations as are drawn from consequences, and common prejudices, and can only serve to obstruct all kinds of improvement in any science whatsoever.

Answ. 2. The two great constituents of our frame frequently alluded to in scripture, and to which [as to other popular notions and received forms of expression] it usually accommodates itself, are here no more confounded, than when St. Paul introduces a third as no less essential to the whole of our composition: "I pray God your whole spirit, and soul, "and body, be preserved blameless unto the coming of our Lord Jesus "Christ." 1 Thess. v. 23.

So far is either the true sense of scripture, or the real nature of things, from being confined to the logical arrangement of them under their established genera or species; so little concerned either in our physical or metaphysical distinctions of them, v. g. into animal and vegetable, material and immaterial, substance and property, &c. nor is its language more confounded, or its authority shaken, by such a new system of pneumatology, than it was by the late one of Copernicus concerning each of the planetary motions; which proved, that strictly and philosophically speaking neither does the sun rise, nor the earth stand upon pillars, &c. or by Newton's principles of gravity and vacuum (for whose supposed innovations his French commentators lately thought themselves still obliged to enter their caveat, and make apology to the church;) or Locke's more hardy doctrine of "no innate ideas;" of which this doctrine of ours is a necessary consequence; since if the mind was once a mere rasa tabula, it will soon appear not only from whence it received all its furniture, but also where that is lodged. (See Esq. Search's account of what he terms the mind's internal organs. Light of Nat. pursued, c. 7, 8.) all which were once equally dangerous and offensive positions; but would such surmises, as have been advanced about them, be admitted in any other case? would even a Romish, or any other inquisition now be found weak or wicked enough to proceed upon them? and if at last an author shall incur the odium theologicum, and be traduced by the name of sadducee, socinian, semipagan, &c. for his innocent, as he thinks, perhaps laudable intentions;—if offence will be taken, as it often happens, where no just cause of offence is given; he must patiently submit to his hard fate, and only beg leave to inquire whether there be not some room for suspending our judgment awhile, 'till it more fully appears where the fault of all this chiefly lies, and who is really answerable for it.

themselves to some other parts of science. Nor are the several proofs, or, if you please, probabilities, that I was not thinking all the last night, sufficiently answered by the old excuse that I may forget all such thoughts immediately as soon as ever I awake: for setting aside the great improbability of this happening so very constantly, for so long a time, it must appear to any one who understands what he says, that whosoever, or whatsoever, was thus employed, it could not possibly be I who was all this while busily engaged in such thoughts, since they never bore the least share in my series of consciousness, never were connected with the chain of my waking thoughts, nor therefore could any more belong to me, than if you suppose them (as you might full as well, for argument's sake, and to salve an hypothesis) to be the working of some secret mechanism, or kept up in the watch that was lying by me. Something like this, I presume, would be the plea, which all the advocates for this lame system would offer in their own defence, were any one so injurious as to charge them with things done or said in their sleep. The same observation may be urged against that absurd, self-repugnant hypothesis of our having been in a pre-existent state: for whatsoever was done there it can be nothing to us, who had never the least notice or conception of it.

To the difficulties so often objected, of this being a "new creation," and making the same thing have "two beginnings of existence;"—We may observe, that it would indeed be an absurdity to suppose two beginnings of existence, if the identity of a substance, being, or man were inquired into; but when the inquiry is made into the artificial abstract idea of personality, invented for a particular end, to answer which consciousness only is required, beginning and end of existence are quite out of the question, being foreign to any consideration of the subject.—It may be farther observed, that in fact we meet with something of the same kind every morning after a total interruption of thought (and I hope, we may by this time in one sense be allowed to term it so) during sound sleep: nay, if we search the thing narrowly, and may in our turn enter into such minutiæ,

thus much will be implied in the successive train of our ideas, even in each hour of the day; that same article of succession including some degree of distance between each of them, and consequently at every successive step there is a new production, which may with equal reason be styled an interruption of thought, or a new exertion of the thinking power.—But enough of these nugæ difficiles. Such changeable, frail creatures then are we through life; yet safe in the hand of that unchangeably just, wise, good, and all-powerful Being, who perfectly understands our frame, and will make due allowances for each defect or disorder incident to it; who at first created us out of nothing, and still preserves us through each shifting scene, be the revolutions in it never so frequent and rapid, and will at length most assuredly conduct us to immortality. Though in every respect we are here "fleeing as it were a shadow, and "never continuing in one stay," and at last suffer a short seeming pause* in our existence, which is in scripture termed the "sleep of death:" yet will he again raise us "out of the dust;" restore us to ourselves, and to our friends†; revive our consciousness of each past act or habit, that may prove of the least moral import; cause the "secrets of all hearts to be laid open," and

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* i. e. a pause in the opinion and sight of other sentient beings existing after our departure, but not a pause strictly so called to the person himself, in which there will be an unbroken thread of consciousness or continued personality; time unperceived being no time, time absolute a fiction, and no idea intervening between the moments of his falling asleep and waking again, these will be to him coincident; which shows that personality cannot have two beginnings of existence, though the substance in which it is found may be perpetually varied, and though sometimes a less number of facts rise up to his remembrance.

† To one who has not seen and felt the unhappy effects of human prejudice and partial judgment in such cases, it might appear strange that so many wise and able men should still continue ignorant of this, after all the fullest information given us in the following express declaration of that great and good apostle St. Paul: "I would not have you to be "ignorant, brethren, concerning them which are asleep, that ye sorrow "not even as others which have no hope. For if we believe that Jesus "died and rose again, even so them also which sleep in Jesus, will God "bring with him.—Wherefore comfort one another with these words." 1 Thess. iv. 13, &c.

either reward or punish every one according to his works done in the body.

Nor does it imply a plurality of persons in any man at any time given to charge him with various actions or omissions; since he may become guilty of a plurality of crimes, as often as he is induced or enabled to reflect upon them, though these cannot be crowded into his mind altogether, any more than they could have been so committed. Nor therefore need all past actions become at once present to the mind; which is utterly inconsistent with our frame, as it now stands, and perhaps with that of every other created being; nor is there a necessity for any one idea being always actually in view; which is equally so; but only for a capacity of having such brought to mind again, together with a consciousness of their having been there before, (which distinguishes them from entirely new ones,) or a possibility of recognizing them upon occasion, at least whenever we are to account for them, as has been frequently observed. So far as any such recognition reaches, such person is the same; when this faculty varies, that must vary also; and he become the same, or not, at different times and in divers respects, as observed likewise; at least his accountableness must vary in proportion, call this personality, or what you think fit. Nor does it properly lie in a power of causing a return of the same idea; but rather in the capacity of receiving it, of re-admitting the same consciousness concerning any past thought, action, or perception. Nor is it merely a present representation of any such act; but a representation of it as our own, which entitles us to it; one person may know or become conscious of the deeds of another, but this is not knowing that he himself was the author of those deeds, which is a contradiction; and to treat him as such upon that account only, would be inverting all rules of right and wrong; and could not therefore be practised by either God or man, since no end could possibly be answered by such treatment, as observed above.

To dwell upon those surprising consequences that might attend the transferring the same consciousness to different beings, or giving the same being very different ones, is merely puzzling and perplexing the point,

by introducing such confusions as never really existed, and would not alter the true state of the question, if they did.

Such Fairy tales and Arabian transformations, possible or impossible, can only serve to amuse the fancy, without any solid information to the judgment. These flights of mere imagination Mr. Locke generally avoids, though he was here tempted to indulge a few such, in playing with the wild suppositions of his adversaries, [v. g. a change of souls between Socrates and the mayor of Queenborough, &c.] probably to enliven a dry subject, and render it more palatable to the bulk of his readers.

Nor are those cases of a disordered imagination in lunacy or vapours, where persons are for a time beside themselves (as we usually term it) and may believe such chimerical alterations to befal them, any more to the purpose.

But it were endless to unravel all futile sophisms and false suppositions, that have been introduced into the present question; I have endeavoured to obviate such as appeared most material, and account for them; and at the same time to inculcate a doctrine, which, though common enough, seemed not enough attended to; yet is fundamentally requisite to a right understanding of this intricate subject. And if that which is laid down above be a true state of the case, all the rest of our author's plan, [of placing personal identity in a continuation of thought*] will drop of course. I trust the reader will make allowance for some repetitions, which were left to render things as plain as possible, and prevent future subterfuges of the like kind; and if the substance of these few hasty observations on the first part of this ingenious writer's essay, prove in the least degree satisfactory to himself, or have a tendency to enlarge general knowledge, and guard against popular errours, I must rely upon his candour for excusing the manner in

* Which disposition, could it be made out, would never answer the intent of society, or help to direct us in our duty, the two grand objects which first gave birth to personality; i. e. to a very partial confined consideration of that complex idea, substance, or being, called man.

which they are thrown out; and shall take the liberty of closing them in the form of a syllogism, which is submitted to his consideration:

Quo posito ponitur personæ identitas, et quo sublato tollitur, id personalem identitatem constituit:

Sed positâ conscientiâ, &c.

Ergo.

APPENDIX.

A friend, well acquainted with the subject of the foregoing sheets, having communicated to me some observations concerning the use of the word Person, which came too late to be inserted in their proper place, I must take the liberty of annexing them, though they occasion some more redundancies and repetitions, in order to throw as much light as is possible on this very obscure and long controverted question.

AS Mr. Locke's definition of the term person (chap. xxvii. §. 9.) may possibly create some difficulty, it will be proper to examine into the sense which should be put upon this word, whenever we inquire after the identity of any man's person; which may perhaps at once lead us to a just conception of the whole. In the aforementioned section, Mr. Locke says, that person stands for, "a thinking intelligent being, that has reason and reflection," &c. whereas I should imagine, the expression would have been more just, had he said that the word person stands for an attribute, or quality, or character of a thinking intelligent being; in the same sense as Tully uses it, Orat. pro Syll. §. 3. "Hanc mihi tu "si, propter res meas gestas, imponis in omni vitâ meâ "personam, Torquate, vehementer erras. Me natura "misericordem, patria severum; crudelem nec patria, "nec natura esse voluit: denique istam ipsam personam "vehementem et acrem, quam mihi tum tempus et "respublica imposuit, jam voluntas et natura ipsa de-"traxit." It came at last to be confounded with, and stand for homo gerens personam (Taylor, Civ. L. p. 247, 248.) and in this sense Locke has incautiously defined the word. It is attributed also to more intelligent

beings than one; as by the jesuits in their declaration prefixed to the third book of Newton, alienam coacti sumus gerere personam. The word person then, according to the received sense in all classical authors, standing for a certain guise, character, quality, i. e. being in fact a mixed mode, or relation, and not a substance; we must next inquire, what particular character or quality it stands for in this place, as the same man may bear many characters and relations at the same, or different times. The answer is, that here it stands for that particular quality or character, under which a man is considered, when he is treated as an intelligent being subject to government and laws, and accountable for his actions: i. e. not the man himself, but an abstract consideration of him, for such and such particular ends: and to inquire after its identity is to inquire, not after the identity of a conscious being, but after the identity of a quality or attribute of such a conscious being. All difficulties that relate to a man's forgetting some actions, &c. now vanish, when person is considered as a character, and not a substance, or confounded with homo gerens personam: and it amounts to no more than saying a man puts on a mask—continuing to wear it for some time—puts off one mask and takes another, i. e. appears to have consciousness—to recollect past consciousnesses —does not recollect them, &c. The impropriety consists in saying, a man is the same person with him who did such a fact; which is the same as to say, a man is blackness, guilt, &c. i. e. a mixed mode is predicated of a substance; whereas it ought to be, in strict propriety of speech, the person of the man who did such a fact, is the same with the person of him, who now stands before us; or, in plainer terms, the man who now stands before the court is conscious of the former facts, and is therefore the proper object of punishment. It may be observed, that the word personality is really an absurd expression; since person itself stands for the mixed mode or quality;—and personality therefore may be ranked among the old scholastic terms of corporeity, egoity, tableity, &c. or is even yet more harsh: as mixed modes, such as gratitude, murder, and therefore person, cannot be thus re-modified without peculiar absurdity.

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Quid tam temerarium tamque indignum sapientis gravitate atque constantiâ, quam aut falsum sentire, aut quod non satis exploratè perceptum sit, & cognitum, sine ullâ dubitatione defendere?

Cic. de Natura Deorum, lib. 1.

Introduction.

§. 1. THE last resort a man has recourse to, in the conduct of himself, is his understanding: for though we distinguish the faculties of the mind, and give the supreme command to the will, as to an agent; yet the truth is, the man, who is the agent, determines himself to this, or that, voluntary action, upon some precedent knowledge, or appearance of knowledge, in the understanding. No man ever sets himself about any thing, but upon some view or other, which serves him for a reason for what he does: and whatsoever faculties he employs, the understanding, with such light as it has, well or ill informed, constantly leads; and by that light, true or false, all his operative powers are directed. The will itself, how absolute and uncontrollable soever it may be thought, never fails in its obedience to the dictates of the understanding. Temples have their sacred images,

and we see what influence they have always had over a great part of mankind. But, in truth, the ideas and images in men's minds are the invisible powers, that constantly govern them; and to these they all universally pay a ready submission. It is, therefore, of the highest concernment, that great care should be taken of the understanding, to conduct it right, in the search of knowledge, and in the judgments it makes.

The logic, now in use, has so long possessed the chair, as the only art taught in the schools, for the direction of the mind, in the study of the arts and sciences, that it would perhaps be thought an affectation of novelty to suspect, that rules, that have served the learned world these two or three thousand years, and which, without any complaint of defects, the learned have rested in, are not sufficient to guide the understanding. And I should not doubt, but this attempt would be censured as vanity or presumption, did not the great lord Verulam's authority justify it; who, not servilely thinking learning could not be advanced beyond what it was, because for many ages it had not been, did not rest in the lazy approbation and applause of what was, because it was; but enlarged his mind to what it might be. In his preface to his Novum Organum, concerning logic, he pronounces thus, "Qui summus dialecticæ partes tribue-
" runt, atque inde fidissima scientiis præsidia comparari
" putârunt, verissimè et optimè viderunt intellectum
" humanum, sibi permissum, meritò suspectum esse de-
" bere. Verum infirmior omninò est malo medicina;
" nec ipsa mali expers. Siquidem dialectica, quæ re-
" cepta est, licet ad civilia et artes, quæ in sermone et
" opinione positæ sunt, rectissimè adhibeatur; naturæ
" tamen subtilitatem longo intervallo non attingit, et
" prensando quod non capit, ad errores potius stabili-
" endos et quasi figendos, quam ad viam veritati aperi-
" endam valuit."

"They, says he, who attributed so much to logic,
" perceived very well and truly, that it was not safe to
" trust the understanding to itself without the guard of
" any rules. But the remedy reached not the evil, but
" became a part of it, for the logic, which took place,

" though it might do well enough in civil affairs, and " the arts, which consisted in talk and opinion; yet " comes very far short of subtlety, in the real perform- " ances of nature; and, catching at what it cannot " reach, has served to confirm and establish errours, " rather than to open a way to truth." And therefore a little after he says, " That it is absolutely necessary, " that a better and perfecter use and employment of " the mind and understanding should be introduced." " Necessariò requiritur ut melior et perfectior mentis et " intellectûs humani usus et adoperatio introducatur."

§. 2. There is, it is visible, great variety in men's understandings, and their natural constitutions put so wide a difference between some men, in this respect, that art and industry would never be able to master; and their very natures seem to want a foundation to raise on it that which other men easily attain unto.—Amongst men of equal education there is great inequality of parts. And the woods of America, as well as the schools of Athens, produce men of several abilities in the same kind. Though this be so, yet I imagine most men come very short of what they might attain unto, in their several degrees, by a neglect of their understandings. A few rules of logic are thought sufficient, in this case, for those who pretend to the highest improvement; whereas I think there are a great many natural defects in the understanding, capable of amendment, which are overlooked and wholly neglected. And it is easy to perceive, that men are guilty of a great many faults, in the exercise and improvement of this faculty of the mind, which hinder them in their progress, and keep them in ignorance and errour all their lives. Some of them I shall take notice of, and endeavour to point out proper remedies for, in the following discourse. Parts.

§. 3. Besides the want of determined ideas, and of sagacity, and exercise in finding out, and laying in order, intermediate ideas; there are three miscarriages, that men are guilty of, in reference to their reason, whereby this faculty is hindered in them from that service it might do, and was designed for. Reasoning.

And he that reflects upon the actions and discourses of mankind, will find their defects in this kind very frequent, and very observable.

1. The first is of those who seldom reason at all, but do and think according to the example of others, whether parents, neighbours, ministers, or who else they are pleased to make choice of to have an implicit faith in, for the saving of themselves the pains and trouble of thinking and examining for themselves.

2. The second is of those who put passion in the place of reason, and, being resolved that shall govern their actions and arguments, neither use their own, nor hearken to other people's reason, any farther than it suits their humour, interest, or party; and these one may observe commonly content themselves with words, which have no distinct ideas to them, though in other matters, that they come with an unbiassed indifferency to, they want not abilities to talk and hear reason, where they have no secret inclination, that hinders them from being intractable to it.

3. The third sort is of those who readily and sincerely follow reason; but, for want of having that, which one may call large, sound, round-about sense, have not a full view of all that relates to the question, and may be of moment to decide it. We are all short-sighted, and very often see but one side of a matter; our views are not extended to all that has a connexion with it. From this defect I think no man is free. We see but in part, and we know but in part, and therefore it is no wonder we conclude not right from our partial views. This might instruct the proudest esteemer of his own parts, how useful it is to talk and consult with others, even such as come short of him in capacity, quickness, and penetration: for, since no one sees all, and we generally have different prospects of the same thing, according to our different, as I may say, positions to it; it is not incongruous to think, nor beneath any man to try, whether another may not have notions of things, which have escaped him, and which his reason would make use of, if they came into his mind. The faculty of reasoning seldom or never deceives those who trust to it; its con-

sequences, from what it builds on, are evident and certain; but that which it oftenest, if not only, misleads us in, is, that the principles from which we conclude, the grounds upon which we bottom our reasoning, are but a part, something is left out, which should go into the reckoning, to make it just and exact. Here we may imagine a vast and almost infinite advantage, that angels and separate spirits may have over us; who, in their several degrees of elevation above us, may be endowed with more comprehensive faculties: and some of them, perhaps, having perfect and exact views of all finite beings, that come under their consideration, can, as it were, in the twinkling of an eye, collect together all their scattered and almost boundless relations. A mind so furnished, what reason has it to acquiesce in the certainty of its conclusions!

In this we may see the reason, why some men of study and thought, that reason right, and are lovers of truth, do make no great advances in their discoveries of it. Errour and truth are uncertainly blended in their minds; their decisions are lame and defective, and they are very often mistaken in their judgments: the reason whereof is, they converse but with one sort of men, they read but one sort of books, they will not come in the hearing but of one sort of notions: the truth is they canton out to themselves a little Goshen, in the intellectual world, where light shines, and as they conclude, day blesses them; but the rest of that vast expansum they give up to night and darkness, and so avoid coming near it. They have a pretty traffic with known correspondents, in some little creek; within that they confine themselves, and are dexterous managers enough of the wares and products of that corner, with which they content themselves, but will not venture out into the great ocean of knowledge, to survey the riches that nature hath stored other parts with, no less genuine, no less solid, no less useful, than what has fallen to their lot, in the admired plenty and sufficiency of their own little spot, which to them contains whatsoever is good in the universe. Those who live thus mewed up, within their own contracted territories, and will not look abroad

beyond the boundaries that chance, conceit, or laziness, has set to their inquiries; but live separate from the notions, discourses, and attainments of the rest of mankind; may not amiss be represented by the inhabitants of the Marian islands; who, being separated, by a large tract of sea, from all communion with the habitable parts of the earth, thought themselves the only people of the world. And though the straitness of the conveniencies of life amongst them, had never reached so far as to the use of fire, till the Spaniards, not many years since, in their voyages from Acapulco to Manilla, brought it amongst them; yet, in the want and ignorance of almost all things, they looked upon themselves, even after that the Spaniards had brought, amongst them, the notice of variety of nations, abounding in sciences, arts, and conveniencies of life, of which they knew nothing; they looked upon themselves, I say, as the happiest and wisest people of the universe. But, for all that, nobody, I think, will imagine them deep naturalists, or solid metaphysicians; nobody will deem the quickest-sighted amongst them to have very enlarged views in ethics, or politics; nor can any one allow the most capable amongst them to be advanced so far in his understanding, as to have any other knowledge, but of the few little things of his and the neighbouring islands, within his commerce; but far enough from that comprehensive enlargement of mind, which adorns a soul devoted to truth, assisted with letters, and a free generation of the several views and sentiments of thinking men of all sides. Let not men, therefore, that would have a sight of what every one pretends to be desirous to have a sight of, truth, in its full extent, narrow and blind their own prospect. Let not men think there is no truth, but in the sciences that they study, or books that they read. To prejudge other men's notions, before we have looked into them, is not to show their darkness, but to put out our own eyes. "Try all things, hold fast that which is good," is a divine rule, coming from the Father of light and truth; and it is hard to know, what other way men can come at truth, to lay hold of it, if they do not dig and search for it as for

gold and hid treasure; but he that does so, must have much earth and rubbish, before he gets the pure metal; sand, and pebbles, and dross usually lie blended with it, but the gold is never the less gold, and will enrich the man that employs his pains to seek and separate it. Neither is there any danger he should be deceived by the mixture. Every man carries about him a touch-stone, if he will make use of it, to distinguish substantial gold from superficial glitterings, truth from appearances. And indeed the use and benefit of this touch-stone, which is natural reason, is spoiled and lost only by assuming prejudices, overweening presumption, and narrowing our minds. The want of exercising it, in the full extent of things intelligible, is that which weakens and extinguishes this noble faculty in us. Trace it, and see whether it be not so. The day-labourer in a country-village has commonly but a small pittance of knowledge, because his ideas and notions have been confined to the narrow bounds of a poor conversation and employment: the low mechanic of a country-town does somewhat out-do him: porters and coblers of great cities surpass them. A country gentleman who, leaving Latin and learning in the university, removes thence to his mansion-house, and associates with neighbours of the same strain, who relish nothing but hunting and a bottle; with those alone he spends his time, with those alone he converses, and can away with no company, whose discourse goes beyond what claret and dissoluteness inspire. Such a patriot, formed in this happy way of improvement, cannot fail, as we see, to give notable decisions upon the bench, at quarter-sessions, and eminent proofs of his skill in politics, when the strength of his purse and party have advanced him to a more conspicuous station. To such a one, truly, an ordinary coffee-house gleaner of the city is an arrant statesman, and as much superior to, as a man conversant about Whitehall and the court, is to an ordinary shop-keeper. To carry this a little farther: Here is one muffled up in the zeal and infallibility of his own sect, and will not touch a book, or enter into debate with a person that will question any of those things, which to him are

sacred. Another surveys our differences in religion with an equitable and fair indifference, and so finds, probably, that none of them are in every thing unexceptionable. These divisions and systems were made by men, and carry the mark of fallible on them; and in those, whom he differs from, and till he opened his eyes, had a general prejudice against, he meets with more to be said for a great many things, than before he was aware of, or could have imagined. Which of these two, now, is most likely to judge right, in our religious controversies, and to be most stored with truth, the mark all pretend to aim at? All these men, that I have instanced in, thus unequally furnished with truth, and advanced in knowledge, I suppose of equal natural parts; all the odds between them has been the different scope that has been given to their understandings to range in, for the gathering up of information, and furnishing their heads with ideas, and notions and observations, whereon to employ their mind, and form their understandings.

It will, possibly, be objected, "who is sufficient for all this?" I answer, more than can be imagined. Every one knows what his proper business is, and what, according to the character he makes of himself, the world may justly expect of him; and to answer that, he will find he will have time and opportunity enough to furnish himself, if he will not deprive himself, by a narrowness of spirit, of those helps that are at hand. I do not say, to be a good geographer, that a man should visit every mountain, river, promontory, and creek, upon the face of the earth, view the buildings, and survey the land every where, as if he were going to make a purchase; but yet every one must allow that he shall know a country better, that makes often sallies into it, and traverses up and down, than he that, like a mill-horse, goes still round in the same track, or keeps within the narrow bounds of a field or two that delight him. He that will inquire out the best books, in every science, and inform himself of the most material authors of the several sects of philosophy and religion, will not find it an infinite work to acquaint himself with the sentiments of mankind, concerning the most weighty and compre-

hensive subjects. Let him exercise the freedom of his reason and understanding in such a latitude as this, and his mind will be strengthened, his capacity enlarged, his faculties improved; and the light, which the remote and scattered parts of truth will give to one another, will so assist his judgment, that he will seldom be widely out, or miss giving proof of a clear head, and a comprehensive knowledge. At least, this is the only way I know, to give the understanding its due improvement to the full extent of its capacity, and to distinguish the two most different things I know in the world, a logical chicaner from a man of reason. Only he, that would thus give the mind its flight, and send abroad his inquiries into all parts after truth, must be sure to settle in his head determined ideas of all that he employs his thoughts about, and never fail to judge himself, and judge unbiassedly, of all that he receives from others, either in their writings or discourses. Reverence, or prejudice, must not be suffered to give beauty, or deformity, to any of their opinions.

Of practice and habits.

§. 4. We are born with faculties and powers capable almost of any thing, such at least as would carry us farther than can easily be imagined: but it is only the exercise of those powers, which gives us ability and skill in any thing, and leads us towards perfection.

A middle-aged ploughman will scarce ever be brought to the carriage and language of a gentleman, though his body be as well proportioned, and his joints as supple, and his natural parts not any way inferior. The legs of a dancing-master, and the fingers of a musician, fall as it were naturally, without thought, or pains, into regular and admirable motions. Bid them change their parts, and they will in vain endeavour to produce like motions in the members not used to them, and it will require length of time and long practice to attain but some degrees of a like ability. What incredible and astonishing actions do we find rope-dancers and tumblers bring their bodies to! Not but that sundry, in almost all manual arts, are as wonderful; but I name those which the world takes notice of for such, because, on that very

account, they give money to see them. All these admired motions, beyond the reach and almost conception of unpractised spectators, are nothing but the mere effects of use and industry in men, whose bodies have nothing peculiar in them from those of the amazed lookers-on.

As it is in the body, so it is in the mind; practice makes it what it is, and most even of those excellencies, which are looked on as natural endowments, will be found, when examined into more narrowly, to be the product of exercise, and to be raised to that pitch, only by repeated actions. Some men are remarked for pleasantness in raillery; others for apologues and apposite diverting stories. This is apt to be taken for the effect of pure nature, and that the rather, because it is not got by rules, and those who excel in either of them, never purposely set themselves to the study of it, as an art to be learnt. But yet it is true, that at first some lucky hit, which took with somebody, and gained him commendation, encouraged him to try again, inclined his thoughts and endeavours that way, till at last he insensibly got a facility in it, without perceiving how; and that is attributed wholly to nature, which was much more the effect of use and practice. I do not deny, that natural disposition may often give the first rise to it, but that never carries a man far, without use and exercise; and it is practice alone, that brings the powers of the mind, as well as those of the body, to their perfection. Many a good poetic vein is buried under a trade, and never produces any thing for want of improvement. We see the ways of discourse and reasoning are very different, even concerning the same matter, at court and in the university. And he that will go but from Westminster-hall to the Exchange, will find a different genius and turn in their ways of talking; and yet one cannot think that all whose lot fell in the city, were born with different parts from those who were bred at the university, or inns of court.

To what purpose all this, but to show that the difference, so observable in men's understandings and parts, does not arise so much from their natural faculties, as

acquired habits. He would be laughed at, that should go about to make a fine dancer out of a country hedger, at past fifty. And he will not have much better success, who shall endeavour, at that age, to make a man reason well, or speak handsomely, who has never been used to it, though you should lay before him a collection of all the best precepts of logic or oratory. Nobody is made any thing by hearing of rules, or laying them up in his memory; practice must settle the habit of doing, without reflecting on the rule; and you may as well hope to make a good painter, or musician, extempore, by a lecture and instruction in the arts of music and painting, as a coherent thinker, or a strict reasoner, by a set of rules, showing him wherein right reasoning consists.

This being so, that defects and weakness in men's understandings, as well as other faculties, come from want of a right use of their own minds; I am apt to think, the fault is generally mislaid upon nature, and there is often a complaint of want of parts, when the fault lies in want of a due improvement of them. We see men frequently dexterous and sharp enough in making a bargain, who, if you reason with them about matters of religion, appear perfectly stupid.

Ideas. §. 5. I will not here, in what relates to the right conduct and improvement of the understanding, repeat again the getting clear and determined ideas, and the employing our thoughts rather about them, than about sounds put for them; nor of settling the signification of words, which we use with ourselves, in the search of truth, or with others, in discoursing about it. Those hindrances of our understandings in the pursuit of knowledge I have sufficiently enlarged upon, in another place; so that nothing more needs here to be said of those matters.

Principles. §. 6. There is another fault, that stops, or misleads, men in their knowledge, which I have also spoken something of, but yet is necessary to mention here again, that we may examine it to the bottom, and see the root it springs from; and that is a custom of taking up with principles that are not self-evident, and very often not so much as true. It is not

unusual to see men rest their opinions upon foundations that have no more certainty and solidity than the propositions built on them, aud embraced for their sake. Such foundations are these and the like, viz.—the founders, or leaders, of my party are good men, and therefore their tenets are true;—it is the opinion of a sect that is erroneous, therefore it is false:—it hath been long received in the world, therefore it is true; or—it is new, and therefore false.

These, and many the like, which are by no means the measures of truth and falsehood, the generality of men make the standards by which they accustom their undestanding to judge. And thus, they falling into a habit of determining of truth, and falsehood, by such wrong measures, it is no wonder they should embrace errour for certainty, and be very positive in things they have no ground for.

There is not any, who pretends to the least reason, but, when any of these his false maxims are brought to the test, must acknowledge them to be fallible, and such as he will not allow in those that differ from him; and yet after he is convinced of this, you shall see him go on in the use of them, and the very next occasion that offers, argue again upon the same grounds. Would one not be ready to think that men are willing to impose upon themselves and mislead their own understandings, who conduct them by such wrong measures, even after they see they cannot be relied on? But yet they will not appear so blameable, as may be thought at first sight: for I think there are a great many, that argue thus in earnest, and do it not to impose on themselves, or others. They are persuaded of what they say, and think there is weight in it, though in a like case they have been convinced there is none; but men would be intolerable to themselves, and contemptible to others, if they should embrace opinions without any ground, and hold what they could give no manner of reason for. True or false, solid or sandy, the mind must have some foundation to rest itself upon; and, as I have remarked in another place, it no sooner entertains any proposition, but it presently hastens to some hypothesis to bottom it on;

till then it is unquiet and unsettled. So much do our own very tempers dispose us to a right use of our understandings if we would follow, as we should, the inclinations of our nature.

In some matters of concernment, especially those of religion, men are not permitted to be always wavering and uncertain; they must embrace and profess some tenets or other; and it would be a shame, nay a contradiction too heavy for any one's mind to lie constantly under, for him to pretend seriously to be persuaded of the truth of any religion, and yet not to be able to give any reason of his belief, or to say any thing for his preference of this to any other opinion: and therefore they must make use of some principles or other, and those can be no other than such as they have and can manage; and to say they are not in earnest persuaded by them, and do not rest upon those they make use of, is contrary to experience, and to allege that they are not misled, when we complain they are.

If this be so, it will be urged, why then do they not make use of sure and unquestionable principles, rather than rest on such grounds as may deceive them, and will, as is visible, serve to support errour, as well as truth?

To this I answer, the reason why they do not make use of better and surer principles, is because they cannot: But this inability proceeds not from want of natural parts (for those few, whose case that is, are to be excused) but for want of use and exercise. Few men are, from their youth, accustomed to strict reasoning, and to trace the dependence of any truth, in a long train of consequences, to its remote principles, and to observe its connexion; and he that by frequent practice has not been used to this employment of his understanding, it is no more wonder, that he should not, when he is grown into years, be able to bring his mind to it, than that he should not be, on a sudden, able to grave, or design, dance on the ropes, or write a good hand, who has never practised either of them.

Nay, the most of men are so wholly strangers to this, that they do not so much as perceive their want of it;

they dispatch the ordinary business of their callings by rote, as we say, as they have learnt it; and if at any time they miss success, they impute it to any thing, rather than want of thought or skill; that they conclude (because they know no better) they have in perfection: or, if there be any subject that interest, or fancy, has recommended to their thoughts, their reasoning about it is still after their own fashion; be it better or worse, it serves their turns, and is the best they are acquainted with; and, therefore, when they are led by it into mistakes, and their business succeeds accordingly, they impute it to any cross accident, or default of others, rather than to their own want of understanding; that is what nobody discovers, or complains of, in himself. Whatsoever made his business to miscarry, it was not want of right thought and judgment in himself: he sees no such defect in himself, but is satisfied that he carries on his designs well enough by his own reasoning, or at least should have done, had it not been for unlucky traverses not in his power. Thus, being content with this short and very imperfect use of his understanding, he never troubles himself to seek out methods of improving his mind, and lives all his life without any notion of close reasoning, in a continued connexion of a long train of consequences, from sure foundations; such as is requisite for the making out and clearing most of the speculative truths most men own to believe, and are most concerned in. Not to mention here, what I shall have occasion to insist on, by and by, more fully, viz. that in many cases it is not one series of consequences will serve the turn, but many different and opposite deductions must be examined and laid together, before a man can come to make a right judgment of the point in question. What then can be expected from men, that neither see the want of any such kind of reasoning, as this; nor, if they do, know how to set about it, or could perform it? You may as well set a countryman, who scarce knows the figures, and never cast up a sum of three particulars, to state a merchant's long account, and find the true balance of it.

What then should be done in the case? I answer, we should always remember what I said above, that the faculties of our souls are improved and made useful to us, just after the same manner as our bodies are. Would you have a man write or paint, dance or fence well, or perform any other manual operation dexterously and with ease? let him have ever so much vigour and activity, suppleness and address naturally, yet nobody expects this from him, unless he has been used to it, and has employed time and pains in fashioning and forming his hand, or outward parts, to these motions. Just so it is in the mind; would you have a man reason well, you must use him to it betimes, exercise his mind in observing the connexion of ideas, and following them in train. Nothing does this better than mathematics; which, therefore, I think should be taught all those who have the time and opportunity; not so much to make them mathematicians, as to make them reasonable creatures; for though we all call ourselves so, because we are born to it, if we please; yet we may truly say, nature gives us but the seeds of it; we are born to be, if we please, rational creatures, but it is use and exercise only that makes us so, and we are, indeed, so no farther than industry and application has carried us. And, therefore, in ways of reasoning, which men have not been used to, he that will observe the conclusions they take up must be satisfied they are not all rational.

This has been the less taken notice of, because every one, in his private affairs, uses some sort of reasoning or other, enough to denominate him reasonable. But the mistake is, that he that is found reasonable in one thing, is concluded to be so in all, and to think, or to say otherwise, is thought so unjust an affront, and so senseless a censure, that nobody ventures to do it. It looks like the degradation of a man below the dignity of his nature. It is true, that he that reasons well in any one thing, has a mind naturally capable of reasoning well in others, and to the same degree of strength and clearness, and possibly much greater, had his understanding been so employed. But it is as true that he who can reason well to-day, about one sort of matters,

cannot at all reason to-day about others, though perhaps a year hence he may. But wherever a man's rational faculty fails him, and will not serve him to reason, there we cannot say he is rational, how capable soever he may be, by time and exercise, to become so.

Try in men of low and mean education, who have never elevated their thoughts above the spade and the plough, nor looked beyond the ordinary drudgery of a day-labourer. Take the thoughts of such an one, used for many years to one track, out of that narrow compass he has been, all his life, confined to, you will find him no more capable of reasoning than almost a perfect natural. Some one or two rules, on which their conclusions immediately depend, you will find in most men have governed all their thoughts; these, true or false, have been the maxims they have been guided by: take these from them, and they are perfectly at a loss, their compass and pole-star then are gone, and their understanding is perfectly at a nonplus; and therefore they either immediately return to their old maxims again, as the foundations of all truth to them, notwithstanding all that can be said to show their weakness; or if they give them up to their reasons, they, with them, give up all truth and farther inquiry, and think there is no such thing as certainty. For if you would enlarge their thoughts and settle them upon more remote and surer principles, they either cannot easily apprehend them; or, if they can, know not what use to make of them; for long deductions from remote principles are what they have not been used to, and cannot manage.

What then, can grown men never be improved, or enlarged in their understandings? I say not so; but this I think I may say, that it will not be done without industry and application, which will require more time and pains than grown men, settled in their course of life, will allow to it, and therefore very seldom is done. And this very capacity of attaining it, by use and exercise only, brings us back to that which I laid down before, that it is only practice that improves our minds as well as bodies, and we must expect nothing from our

understandings, any farther than they are perfected by habits.

The Americans are not all born with worse understandings than the Europeans, though we see none of them have such reaches in the arts and sciences. And, among the children of a poor countryman, the lucky chance of education, and getting into the world, gives one infinitely the superiority in parts over the rest, who, continuing at home, had continued also just of the same size with his brethren.

He that has to do with young scholars, especially in mathematics, may perceive how their minds open by degrees, and how it is exercise alone that opens them. Sometimes they will stick a long time at a part of a demonstration, not for want of will and application, but really for want of perceiving the connexion of two ideas, that, to one whose understanding is more exercised, is as visible as any thing can be. The same would be with a grown man beginning to study mathematics, the understanding, for want of use, often sticks in every plain way, and he himself that is so puzzled, when he comes to see the connexion, wonders what it was he stuck at, in a case so plain.

Mathematics.

§. 7. I have mentioned mathematics as a way to settle in the mind an habit of reasoning closely and in train; not that I think it necessary that all men should be deep mathematicians, but that, having got the way of reasoning, which that study necessarily brings the mind to, they might be able to transfer it to other parts of knowledge, as they shall have occasion. For, in all sorts of reasoning, every single argument should be managed as a mathematical demonstration: the connexion and dependence of ideas should be followed, till the mind is brought to the source on which it bottoms, and observes the coherence all along, though in proofs of probability one such train is not enough to settle the judgment, as in demonstrative knowledge.

Where a truth is made out by one demonstration, there needs no farther inquiry: but in probabilities, where there wants demonstration to establish the truth

beyond doubt, there it is not enough to trace one argument to its source, and observe its strength and weakness, but all the arguments, after having been so examined on both sides, must be laid in balance one against another, and, upon the whole, the understanding determine its assent.

This is a way of reasoning the understanding should be accustomed to, which is so different from what the illiterate are used to, that even learned men sometimes seem to have very little or no notion of it. Nor is it to be wondered, since the way of disputing, in the schools, leads them quite away from it, by insisting on one topical argument, by the success of which the truth, or falsehood, of the question is to be determined, and victory adjudged to the opponent, or defendant; which is all one as if one should balance an account by one sum, charged and discharged, when there are an hundred others to be taken into consideration.

This, therefore, it would be well if men's minds were accustomed to, and that early; that they might not erect their opinions upon one single view, when so many other are requisite to make up the account, and must come into the reckoning, before a man can form a right judgment. This would enlarge their minds, and give a due freedom to their understandings, that they might not be led into errour by presumption, laziness, or precipitancy; for I think nobody can approve such a conduct of the understanding, as should mislead it from truth, though it be ever so much in fashion to make use of it.

To this perhaps it will be objected, that to manage the understanding as I propose, would require every man to be a scholar, and to be furnished with all the materials of knowledge, and exercised in all the ways of reasoning. To which I answer, that it is a shame for those that have time, and the means to attain knowledge, to want any helps, or assistance, for the improvement of their understandings, that are to be got; and to such I would be thought here chiefly to speak. Those methinks, who, by the industry and parts of their ancestors, have been set free from a constant drudgery to their backs and their bellies, should bestow some of their

spare time on their heads, and open their minds, by some trials and essays, in all the sorts and matters of reasoning. I have before mentioned mathematics, wherein algebra gives new helps and views to the understanding. If I propose these, it is not, as I said, to make every man a thorough mathematician, or a deep algebraist; but yet I think the study of them is of infinite use, even to grown men; first, by experimentally convincing them, that to make any one reason well, it is not enough to have parts wherewith he is satisfied, and that serve him well enough in his ordinary course. A man in those studies will see, that however good he may think his understanding, yet in many things, and those very visible, it may fail him. This would take off that presumption that most men have of themselves in this part; and they would not be so apt to think their minds wanted no helps to enlarge them, that there could be nothing added to the acuteness and penetration of their understandings.

Secondly, the study of mathematics would show them the necessity there is in reasoning, to separate all the distinct ideas, and see the habitudes that all those concerned in the present inquiry have to one another, and to lay by those which relate not to the proposition in hand, and wholly to leave them out of the reckoning. This is that which, in other subjects, besides quantity, is what is absolutely requisite to just reasoning, though in them it is not so easily observed, nor so carefully practised. In those parts of knowledge where it is thought demonstration has nothing to do, men reason as it were in the lump; and if, upon a summary and confused view, or upon a partial consideration, they can raise the appearance of a probability, they usually rest content; especially if it be in a dispute where every little straw is laid hold on, and every thing that can but be drawn in any way to give colour to the argument, is advanced with ostentation. But that mind is not in a posture to find the truth, that does not distinctly take all the parts asunder, and, omitting what is not at all to the point, draw a conclusion from the result of all the particulars, which any way influence it. There is an-

other no less useful habit to be got by an application to mathematical demonstrations, and that is, of using the mind to a long train of consequences: but having mentioned that already, I shall not again here repeat it.

As to men whose fortunes and time are narrower, what may suffice them is not of that vast extent as may be imagined, and so comes not within the objection.

Nobody is under an obligation to know every thing. Knowledge and science in general, is the business only of those who are at ease and leisure. Those who have particular callings ought to understand them; and it is no unreasonable proposal, nor impossible to be compassed, that they should think and reason right about what is their daily employment. This one cannot think them incapable of, without levelling them with the brutes, and charging them with a stupidity below the rank of rational creatures.

Religion. §. 8. Besides his particular calling for the support of this life, every one has a concern in a future life, which he is bound to look after. This engages his thoughts in religion; and here it mightily lies upon him to understand and reason right. Men, therefore, cannot be excused from understanding the words, and framing the general notions relating to religion, right. The one day of seven, besides other days of rest, allows in the christian world time enough for this (had they no other idle hours) if they would but make use of these vacancies from their daily labour, and apply themselves to an improvement of knowledge with as much diligence as they often do to a great many other things that are useless, and had but those that would enter them according to their several capacities in a right way to this knowledge. The original make of their minds is like that of other men, and they would be found not to want understanding fit to receive the knowledge of religion, if they were a little encouraged and helped in it, as they should be. For there are instances of very mean people, who have raised their minds to a great sense and understanding of religion: and though these have not been so frequent as could be wished; yet they are enough to clear that condition of

life from a necessity of gross ignorance, and to show that more might be brought to be rational creatures and christians (for they can hardly be thought really to be so, who, wearing the name, know not so much as the very principles of that religion) if due care were taken of them. For, if I mistake not, the peasantry lately in France (a rank of people under a much heavier pressure of want and poverty, than the day-labourers in England) of the reformed religion, understood it much better, and could say more for it, than those of a higher condition among us.

But if it shall be concluded that the meaner sort of people must give themselves up to brutish stupidity in the things of their nearest concernment, which I see no reason for, this excuses not those of a freer fortune and education, if they neglect their understandings, and take no care to employ them as they ought, and set them right in the knowledge of those things for which principally they were given them. At least those, whose plentiful fortunes allow them the opportunities and helps of improvements, are not so few, but that it might be hoped great advancements might be made in knowledge of all kinds, especially in that of the greatest concern and largest views, if men would make a right use of their faculties, and study their own understandings.

§. 9. Outward corporeal objects, that constantly importune our senses and captivate our appetites, fail not to fill our heads with lively and lasting ideas of that kind. Here the mind needs not to be set upon getting greater store; they offer themselves fast enough, and are usually entertained in such plenty, and lodged so carefully, that the mind wants room, or attention, for others that it has more use and need of. To fit the understanding, therefore, for such reasoning as I have been above speaking of, care should be taken to fill it with moral and more abstract ideas; for these not offering themselves to the senses, but being to be framed to the understanding, people are generally so neglectful of a faculty they are apt to think wants nothing, that I fear most men's minds are more unfurnished with such ideas than is imagined. They often use the words, and Ideas.

how can they be suspected to want the ideas? What I have said in the third book of my essay, will excuse me from any other answer to this question. But to convince people of what moment it is to their understandings to be furnished with such abstract ideas, steady and settled in them, give me leave to ask, how any one shall be able to know whether he be obliged to be just, if he has not established ideas in his mind of obligation and of justice; since knowledge consists in nothing but the perceived agreement or disagreement of those ideas? and so of all others the like, which concern our lives and manners. And if men do find a difficulty to see the agreement or disagreement of two angles, which lie before their eyes, unalterable in a diagram; how utterly impossible will it be to perceive it in ideas that have no other sensible object to represent them to the mind but sounds; with which they have no manner of conformity, and therefore had need to be clearly settled in the mind themselves, if we would make any clear judgment about them? This, therefore, is one of the first things the mind should be employed about, in the right conduct of the understanding, without which it is impossible it should be capable of reasoning right about those matters. But in these, and all other ideas, care must be taken that they harbour no inconsistencies, and that they have a real existence where real existence is supposed; and are not mere chimeras with a supposed existence.

Prejudice. §. 10. Every one is forward to complain of the prejudices that mislead other men or parties, as if he were free, and had none of his own. This being objected on all sides, it is agreed, that it is a fault and an hindrance to knowledge. What now is the cure? No other but this, that every man should let alone other prejudices, and examine his own. Nobody is convinced of his by the accusation of another; he recriminates by the same rule, and is clear. The only way to remove this great cause of ignorance and errour out of the world, is, for every one impartially to examine himself. If others will not deal fairly with their own minds, does that make my errours truths? or ought it to make me in love with them, and willing to impose

on myself? If others love cataracts in their eyes, should that hinder me from couching of mine as soon as I can? Every one declares against blindness, and yet who almost is not fond of that which dims his sight, and keeps the clear light out of his mind, which should lead him into truth and knowledge? False or doubtful positions, relied upon as unquestionable maxims, keep those in the dark from truth who build on them. Such are usually the prejudices imbibed from education, party, reverence, fashion, interest, &c. This is the mote which every one sees in his brother's eye, but never regards the beam in his own. For who is there almost that is ever brought fairly to examine his own principles, and see whether they are such as will bear the trial? But yet this should be one of the first things every one should set about, and be scrupulous in, who would rightly conduct his understanding in the search of truth and knowledge.

To those who are willing to get rid of this great hindrance of knowledge, (for to such only I write) to those who would shake off this great and dangerous impostor, prejudice, who dresses up falsehood in the likeness of truth, and so dexterously hoodwinks men's minds, as to keep them in the dark, with a belief that they are more in the light than any that do not see with their eyes; I shall offer this one mark whereby prejudice may be known. He that is strongly of any opinion, must suppose (unless he be self-condemned) that his persuasion is built upon good grounds; and that his assent is no greater than what the evidence of the truth he holds forces him to; and that they are arguments, and not inclination, or fancy, that make him so confident and positive in his tenets. Now, if after all his profession, he cannot bear any opposition to his opinion, if he cannot so much as give a patient hearing, much less examine and weigh the arguments on the other side, does he not plainly confess it is prejudice governs him? and it is not the evidence of truth, but some lazy anticipation, some beloved presumption, that he desires to rest undisturbed in. For, if what he holds be, as he gives out, well fenced with evidence, and he sees it to be true, what need he fear to put it to the proof? If his opinion be

settled upon a firm foundation, if the arguments that support it, and have obtained his assent, be clear, good, and convincing, why should he be shy to have it tried whether they be proof or not? He whose assent goes beyond this evidence, owes this excess of his adherence only to prejudice, and does in effect own it, when he refuses to hear what is offered against it; declaring thereby, that it is not evidence he seeks, but the quiet enjoyment of the opinion he is fond of, with a forward condemnation of all that may stand in opposition to it, unheard and unexamined; which, what is it but prejudice? "qui æquum statuerit, parte inauditâ alterâ, etiamsi æquum statuerit, haud æquus fuerit." He that would acquit himself in this case as a lover of truth, not giving way to any pre-occupation, or bias, that may mislead him, must do two things that are not very common, nor very easy.

Indifferency. §. 11. First, he must not be in love with any opinion, or wish it to be true, till he knows it to be so, and then he will not need to wish it: for nothing that is false can deserve our good wishes, nor a desire that it should have the place and force of truth; and yet nothing is more frequent than this. Men are fond of certain tenets upon no other evidence but respect and custom, and think they must maintain them, or all is gone; though they have never examined the ground they stand on, nor have ever made them out to themselves, or can make them out to others: we should contend earnestly for the truth, but we should first be sure that it is truth, or else we fight against God, who is the God of truth, and do the work of the devil, who is the father and propagator of lyes; and our zeal, though ever so warm, will not excuse us, for this is plainly prejudice.

Examine. §. 12. Secondly, he must do that which he will find himself very averse to, as judging the thing unnecessary, or himself incapable of doing it. He must try whether his principles be certainly true, or not, and how far he may safely rely upon them. This, whether fewer have the heart or the skill to do, I shall not determine; but this, I am sure, is that

which every one ought to do, who professes to love truth, and would not impose upon himself; which is a surer way to be made a fool of, than by being exposed to the sophistry of others. The disposition to put any cheat upon ourselves works constantly, and we are pleased with it, but are impatient of being bantered or misled by others. The inability I here speak of, is not any natural defect that makes men incapable of examining their own principles. To such, rules of conducting their understandings are useless; and that is the case of very few. The great number is of those whom the ill habit of never exerting their thoughts has disabled; the powers of their minds are starved by disuse, and have lost that reach and strength which nature fitted them to receive from exercise. Those who are in a condition to learn the first rules of plain arithmetic, and could be brought to cast up an ordinary sum, are capable of this, if they had but accustomed their minds to reasoning: but they that have wholly neglected the exercise of their understandings in this way, will be very far, at first, from being able to do it, and as unfit for it as one unpractised in figures to cast up a shop-book, and, perhaps, think it as strange to be set about it. And yet it must nevertheless be confessed to be a wrong use of our understandings, to build our tenets (in things where we are concerned to hold the truth) upon principles that may lead us into errour. We take our principles at hap-hazard, upon trust, and without ever having examined them, and then believe a whole system, upon a presumption that they are true and solid; and what is all this, but childish, shameful, senseless credulity?

In these two things, viz. an equal indifferency for all truth; I mean the receiving it, the love of it, as truth, but not loving it for any other reason, before we know it to be true; and in the examination of our principles, and not receiving any for such, nor building on them, till we are fully convinced, as rational creatures, of their solidity, truth, and certainty; consists that freedom of the understanding which is necessary to a rational creature, and without which it is not truly an understanding. It is conceit, fancy, extravagance, any thing rather

than understanding, if it must be under the constraint of receiving and holding opinions by the authority of any thing but their own, not fancied, but perceived, evidence. This was rightly called imposition, and is of all other the worst and most dangerous sort of it. For we impose upon ourselves, which is the strongest imposition of all others; and we impose upon ourselves in that part which ought with the greatest care to be kept free from all imposition. The world is apt to cast great blame on those who have an indifferency for opinions, especially in religion. I fear this is the foundation of great errour and worse consequences. To be indifferent which of two opinions is true, is the right temper of the mind that preserves it from being imposed on, and disposes it to examine with that indifferency, till it has done its best to find the truth, and this is the only direct and safe way to it. But to be indifferent whether we embrace falsehood or truth, is the great road to errour. Those who are not indifferent which opinion is true, are guilty of this; they suppose, without examining, that what they hold is true, and then think they ought to be zealous for it. Those, it is plain by their warmth and eagerness, are not indifferent for their own opinions, but methinks are very indifferent whether they be true or false; since they cannot endure to have any doubts raised, or objections made against them; and it is visible they never have made any themselves, and so never having examined them, know not, nor are concerned, as they should be, to know whether they be true or false.

These are the common and most general miscarriages which I think men should avoid, or rectify, in a right conduct of their understandings, and should be particularly taken care of in education. The business whereof, in respect of knowledge, is not, as I think, to perfect a learner in all or any one of the sciences, but to give his mind that freedom, that disposition, and those habits, that may enable him to attain any part of knowledge he shall apply himself to, or stand in need of, in the future course of his life.

This, and this only, is well principling, and not the instilling a reverence and veneration for certain dogmas, under the specious title of principles, which are often so remote from that truth and evidence which belongs to principles, that they ought to be rejected, as false and erroneous; and often cause men so educated, when they come abroad into the world, and find they cannot maintain the principles so taken up and rested in, to cast off all principles, and turn perfect sceptics, regardless of knowledge and virtue.

There are several weaknesses and defects in the understanding, either from the natural temper of the mind, or ill habits taken up, which hinder it in its progress to knowledge. Of these there are as many, possibly, to be found, if the mind were thoroughly studied, as there are diseases of the body, each whereof clogs and disables the understanding to some degree, and therefore deserves to be looked after and cured. I shall set down some few to excite men, especially those who make knowledge their business, to look into themselves, and observe whether they do not indulge some weaknesses, allow some miscarriages in the management of their intellectual faculty, which is prejudicial to them in the search of truth.

Observations.

§. 13. Particular matters of fact are the undoubted foundations on which our civil and natural knowledge is built: the benefit the understanding makes of them, is to draw from them conclusions, which may be as standing rules of knowledge, and consequently of practice. The mind often makes not that benefit it should of the information it receives from the accounts of civil or natural historians, by being too forward or too slow in making observations on the particular facts recorded in them.

There are those who are very assiduous in reading, and yet do not much advance their knowledge by it. They are delighted with the stories that are told, and perhaps call tell them again, for they make all they read nothing but history to themselves; but not reflecting on it, not making to themselves observations from what they read, they are very little improved by all that crowd of par-

ticulars, that either pass through, or lodge themselves in their understandings. They dream on in a constant course of reading and cramming themselves; but not digesting any thing, it produces nothing but a heap of crudities.

If their memories retain well, one may say, they have the materials of knowledge; but, like those for building, they are of no advantage, if there be no other use made of them but to let them lie heaped up together. Opposite to these, there are others who lose the improvement they should make of matters of fact by a quite contrary conduct. They are apt to draw general conclusions, and raise axioms from every particular they meet with. These make as little true benefit of history as the other; nay, being of forward and active spirits, receive more harm by it; it being of worse consequence to steer one's thoughts by a wrong rule, than to have none at all; errour doing to busy men much more harm, than ignorance to the slow and sluggish. Between these, those seem to do best, who taking material and useful hints, sometimes from single matters of fact, carry them in their minds to be judged of, by what they shall find in history, to confirm or reverse their imperfect observations: which may be established into rules fit to be relied on, when they are justified by a sufficient and wary induction of particulars. He that makes no such reflections on what he reads, only loads his mind with a rhapsody of tales, fit, in winter-nights, for the entertainment of others: and he that will improve every matter of fact into a maxim, will abound in contrary observations, that can be of no other use but to perplex and pudder him, if he compares them; or else to misguide him, if he gives himself up to the authority of that, which for its novelty, or for some other fancy, best pleases him.

Bias. §. 14. Next to these, we may place those who suffer their own natural tempers and passions they are possessed with, to influence their judgments, especially of men and things, that may any way relate to their present circumstances and interest. Truth is all simple, all pure, will bear no mixture of any thing

else with it. It is rigid and inflexible to any by interests; and so should the understanding be, whose use and excellency lies in conforming itself to it. To think of every thing just as it is in itself, is the proper business of the understanding, though it be not that which men always employ it to. This all men, at first hearing, allow, is the right use every one should make of his understanding. Nobody will be at such an open defiance with common sense, as to profess that we should not endeavour to know, and think of things as they are in themselves; and yet there is nothing more frequent than to do the contrary; and men are apt to excuse themselves; and think they have reason to do so, if they have but a pretence that it is for God, or a good cause; that is, in effect, for themselves, their own persuasion, or party: for those in their turns the several sects of men, especially in matters of religion, entitle God and a good cause. But God requires not men to wrong or misuse their faculties for him, nor to lye to others, or themselves, for his sake: which they purposely do, who will not suffer their understandings to have right conceptions of the things proposed to them, and designedly restrain themselves from having just thoughts of every thing, as far as they are concerned to inquire. And as for a good cause, that needs not such ill helps; if it be good, truth will support it, and it has no need of fallacy or falsehood.

Arguments.

§. 15. Very much of kin to this, is the hunting after arguments to make good one side of a question, and wholly to neglect and refuse those which favour the other side. What is this but wilfully to misguide the understanding, and is so far from giving truth its due value, that it wholly debases it: espouse opinions that best comport with their power, profit, or credit, and then seek arguments to support them? Truth light upon this way, is of no more avail to us than errour; for what is so taken up by us may be false as well as true, and he has not done his duty who has thus stumbled upon truth in his way to preferment.

There is another, but more innocent way of collecting arguments, very familiar among bookish men, which

is to furnish themselves with the arguments they meet with pro and con in the questions they study. This helps them not to judge right, nor argue strongly; but only to talk copiously on either side, without being steady and settled in their own judgments: For such arguments gathered from other men's thoughts, floating only in the memory, are there ready, indeed, to supply copious talk with some appearance of reason, but are far from helping us to judge right. Such variety of arguments only distract the understanding that relies on them, unless it has gone farther than such a superficial way of examining; this is to quit truth for appearance, only to serve our vanity. The sure and only way to get true knowledge, is to form in our minds clear settled notions of things, with names annexed to those determined ideas. These we are to consider, with their several relations and habitudes, and not amuse ourselves with floating names, and words of indetermined signification, which we can use in several senses to serve a turn. It is in the perception of the habitudes and respects our ideas have one to another, that real knowledge consists; and when a man once perceives how far they agree or disagree one with another, he will be able to judge of what other people say, and will not need to be led by the arguments of others, which are many of them nothing but plausible sophistry. This will teach him to state the question right, and see whereon it turns; and thus he will stand upon his own legs, and know by his own understanding. Whereas by collecting and learning arguments by heart, he will be but a retainer to others; and when any one questions the foundations they are built upon, he will be at a nonplus, and be fain to give up his implicit knowledge.

Haste. §. 16. Labour for labour-sake is against nature. The understanding, as well as all the other faculties, chooses always the shortest way to its end, would presently obtain the knowledge it is about, and then set upon some new inquiry. But this, whether laziness or haste, often misleads it, and makes it content itself with improper ways of search, and such as will not serve the turn: sometimes it rests upon tes-

timony, when testimony of right has nothing to do, because it is easier to believe than to be scientifically instructed: sometimes it contents itself with one argument, and rests satisfied with that, as it were a demonstration, whereas the thing under proof is not capable of demonstration, and therefore must be submitted to the trial of probabilities, and all the material arguments pro and con be examined and brought to a balance. In some cases the mind is determined by probable topics in inquiries where demonstration may be had. All these, and several others, which laziness, impatience, custom, and want of use and attention lead men into, are misapplications of the understanding in the search of truth. In every question the nature and manner of the proof it is capable of should be considered, to make our inquiry such as it should be. This would save a great deal of frequently misemployed pains, and lead us sooner to that discovery and possession of truth we are capable of. The multiplying variety of arguments, especially frivolous ones, such as are all that are merely verbal, is not only lost labour, but cumbers the memory to no purpose, and serves only to hinder it from seizing and holding of the truth in all those cases which are capable of demonstration. In such a way of proof the truth and certainty is seen, and the mind fully possesses itself of it; when in the other way of assent it only hovers about it, is amused with uncertainties. In this superficial way, indeed, the mind is capable of more variety of plausible talk, but is not enlarged, as it should be, in its knowledge. It is to this same haste and impatience of the mind also, that a not due tracing of the arguments to their true foundation is owing; men see a little, presume a great deal, and so jump to the conclusion. This is a short way to fancy and conceit, and (if firmly embraced) to opinionatry, but is certainly the farthest way about to knowledge. For he that will know, must by the connexion of the proofs see the truth, and the ground it stands on; and therefore, if he has for haste skipt over what he should have examined, he must begin and go over all again, or else he will never come to knowledge.

Desultory. §. 17. Another fault of as ill consequence as this, which proceeds also from laziness, with a mixture of vanity, is the skipping from one sort knowledge to another. Some men's tempers are quickly weary of any one thing. Constancy and assiduity is what they cannot bear; the same study long continued in, is as intolerable to them, as the appearing long in the same clothes, or fashion, is to a court-lady.

Smattering. §. 18. Others, that they may seem universally knowing, get a little smattering in every thing. Both these may fill their heads with superficial notions of things, but are very much out of the way of attaining truth or knowledge.

Universality. §. 19. I do not here speak against the taking a taste of every sort of knowledge; it is certainly very useful and necessary to form the mind; but then it must be done in a different way, and to a different end. Not for talk and vanity to fill the head with shreds of all kinds, that he who is possessed of such a frippery, may be able to match the discourses of all he shall meet with, as if nothing could come amiss to him; and his head was so well stored a magazine, that nothing could be proposed which he was not master of, and was readily furnished to entertain any one on. This is an excellency, indeed, and a great one too, to have a real and true knowledge in all, or most of the objects of contemplation. But it is what the mind of one and the same man can hardly attain unto; and the instances are so few of those who have, in any measure, approached towards it, that I know not whether they are to be proposed as examples in the ordinary conduct of the understanding. For a man to understand fully the business of his particular calling in the commonwealth, and of religion, which is his calling as he is a man in the world, is usually enough to take up his whole time; and there are few that inform themselves in these, which is every man's proper and peculiar business, so to the bottom as they should do. But though this be so, and there are very few men that extend their thoughts towards universal knowledge; yet I do not doubt, but

if the right way were taken, and the methods of inquiry were ordered as they should be, men of little business and great leisure might go a great deal farther in it than is usually done. To turn to the business in hand; the end and use of a little insight in those parts of knowledge, which are not a man's proper business, is to accustom our minds to all sorts of ideas, and the proper ways of examining their habitudes and relations. This gives the mind a freedom, and the exercising the understanding in the several ways of inquiry and reasoning, which the most skilful have made use of, teaches the mind sagacity and wariness, and a suppleness to apply itself more closely and dexterously to the bents and turns of the matter in all its researches. Besides, this universal taste of all the sciences, with an indifferency before the mind is possessed with any one in particular, and grown into love and admiration of what is made its darling, will prevent another evil, very commonly to be observed in those who have from the beginning been seasoned only by one part of knowledge. Let a man be given up to the contemplation of one sort of knowledge, and that will become every thing. The mind will take such a tincture from a familiarity with that object, that every thing else, how remote soever, will be brought under the same view. A metaphysician will bring plowing and gardening immediately to abstract notions: the history of nature shall signify nothing to him. An alchemist, on the contrary, shall reduce divinity to the maxims of his laboratory: explain morality by sal, sulphur and mercury; and allegorise the scripture itself, and the sacred mysteries thereof, into the philosopher's stone. And I heard once a man, who had a more than ordinary excellency in music, seriously accommodate Moses's seven days of the first week to the notes of music, as if from thence had been taken the measure and method of the creation. It is of no small consequence to keep the mind from such a possession, which I think is best done by giving it a fair and equal view of the whole intellectual world, wherein it may see the order, rank, and beauty of the whole, and give a just allow-

ance to the distinct provinces of the several sciences in the due order and usefulness of each of them.

If this be that which old men will not think necessary, nor be easily brought to; it is fit, at least, that it should be practised in the breeding of the young. The business of education, as I have already observed, is not, as I think, to make them perfect in any one of the sciences, but so to open and dispose their minds, as may best make them capable of any, when they shall apply themselves to it. If men are, for a long time, accustomed only to one sort or method of thoughts, their minds grow stiff in it, and do not readily turn to another. It is, therefore, to give them this freedom, that I think they should be made to look into all sorts of knowledge, and exercise their understandings in so wide a variety and stock of knowledge. But I do not propose it as a variety and stock of knowledge, but a variety and freedom of thinking; as an increase of the powers and activity of the mind, not as an enlargement of its possessions.

Reading. §. 20. This is that which I think great readers are apt to be mistaken in. Those who have read of every thing, are thought to understand every thing too; but it is not always so. Reading furnishes the mind only with materials of knowledge, it is thinking makes what we read ours. We are of the ruminating kind, and it is not enough to cram ourselves with a great load of collections; unless we chew them over again, they will not give us strength and nourishment. There are, indeed, in some writers visible instances of deep thoughts, close and acute reasoning, and ideas well pursued. The light these would give would be of great use, if their reader would observe and imitate them; all the rest at best are but particulars fit to be turned into knowledge; but that can be done only by our own meditation, and examining the reach, force and coherence of what is said; and then, as far as we apprehend and see the connexion of ideas, so far it is ours; without that, it is but so much loose matter floating in our brain. The memory may be stored, but the judgment is little better, and the stock of knowledge

not increased, by being able to repeat what others have said, or produce the arguments we have found in them. Such a knowledge as this is but knowledge by hear-say, and the ostentation of it is at best but talking by rote, and very often upon weak and wrong principles. For all that is to be found in books, is not built upon true foundations, nor always rightly deduced from the principles it is pretended to be built on. Such an examen as is requisite to discover that, every reader's mind is not forward to make; especially in those who have given themselves up to a party, and only hunt for what they can scrape together, that may favour and support the tenets of it. Such men wilfully exclude themselves from truth, and from all true benefit to be received by reading. Others of more indifferency often want attention and industry. The mind is backward in itself to be at the pains to trace every argument to its original, and to see upon what basis it stands, and how firmly; but yet it is this that gives so much the advantage to one man more than another in reading. The mind should by severe rules be tyed down to this, at first, uneasy task; use and exercise will give it facility. So that those who are accustomed to it, readily, as it were with one cast of the eye, take a view of the argument, and presently, in most cases, see where it bottoms. Those who have got this faculty, one may say, have got the true key of books, and the clue to lead them through the mizmaze of variety of opinions and authors to truth and certainty. This young beginners should be entered in, and showed the use of, that they might profit by their reading. Those who are strangers to it, will be apt to think it too great a clog in the way of men's studies, and they will suspect they shall make but small progress, if, in the books they read, they must stand to examine and unravel every argument, and follow it step by step up to its original.

I answer, this is a good objection, and ought to weigh with those whose reading is designed for much talk and little knowledge, and I have nothing to say to it. But I am here inquiring into the conduct of the understanding in its progress towards knowledge; and to those

who aim at that, I may say, that he who fair and softly goes steadily forward in a course that points right, will sooner be at his journey's end than he that runs after every one he meets, though he gallop all day full speed.

To which let me add, that this way of thinking on, and profiting by, what we read, will be a clog and rub to any one only in the beginning: when custom and exercise has made it familiar, it will be dispatched, on most occasions, without resting or interruption in the course of our reading. The motions and views of a mind exercised that way, are wonderfully quick; and a man used to such sort of reflections, sees as much at one glimpse as would require a long discourse to lay before another, and make out in an entire and gradual deduction. Besides that, when the first difficulties are over, the delight and sensible advantage it brings, mightily encourages and enlivens the mind in reading, which without this is very improperly called study.

Intermediate principles.

§. 21. As an help to this, I think it may be proposed, that for the saving the long progression of the thoughts to remote and first principles in every case, the mind should provide it several stages; that is to say, intermediate principles, which it might have recourse to in the examining those positions that come in its way. These, though they are not self-evident principles, yet if they had been made out from them by a wary and unquestionable deduction, may be depended on as certain and infallible truths, and serve as unquestionable truths to prove other points depending on them by a nearer and shorter view than remote and general maxims. These may serve as land-marks to show what lies in the direct way of truth, or is quite beside it. And thus mathematicians do, who do not in every new problem run it back to the first axioms, through all the whole train of intermediate propositions. Certain theorems, that they have settled to themselves upon sure demonstration, serve to resolve to them multitudes of propositions which depend on them, and are as firmly made out from thence, as if the mind went afresh over every link of the whole chain that ties

them to first self-evident principles. Only in other sciences great care is to be taken, that they establish those intermediate principles with as much caution, exactness, and indifferency, as mathematicians use in the settling any of their great theorems. When this is not done, but men take up the principles in this or that science upon credit, inclination, interest, &c. in haste, without due examination, and most unquestionable proof, they lay a trap for themselves, and, as much as in them lies, captivate their understandings to mistake, falsehood, and errour.

Partiality.

§. 22. As there is a partiality to opinions, which, as we have already observed, is apt to mislead the understanding; so there is often a partiality to studies, which is prejudicial also to knowledge and improvement. Those sciences which men are particularly versed in, they are apt to value and extol, as if that part of knowledge which every one has acquainted himself with, were that alone which was worth the having, and all the rest were idle and empty amusements, comparatively of no use or importance. This is the effect of ignorance, and not knowledge, the being vainly puffed up with a flatulency, arising from a weak and narrow comprehension. It is not amiss that every one should relish the science that he has made his peculiar study; a view of its beauties, and a sense of its usefulness, carries a man on with the more delight and warmth in the pursuit and improvement of it. But the contempt of all other knowledge, as if it were nothing in comparison of law or physic, of astronomy or chemistry, or perhaps some yet meaner part of knowledge, wherein I have got some smattering, or am somewhat advanced, is not only the mark of a vain or little mind; but does this prejudice in the conduct of the understanding, that it coops it up within narrow bounds, and hinders it from looking abroad into other provinces of the intellectual world, more beautiful possibly, and more fruitful than that which it had, till then, laboured in; wherein it might find, besides new knowledge, ways or hints whereby it might be enabled the better to cultivate its own.

Theology. §. 23. There is, indeed, one science (as they are now distinguished) incomparably above all the rest, where it is not by corruption narrowed into a trade or faction, for mean or ill ends, and secular interests; I mean theology, which, containing the knowledge of God and his creatures, our duty to him and our fellow-creatures, and a view of our present and future state, is the comprehension of all other knowledge directed to its true end; i. e. the honour and veneration of the Creator, and the happiness of mankind. This is that noble study which is every man's duty, and every one that can be called a rational creature is capable of. The works of nature, and the words of revelation, display it to mankind in characters so large and visible, that those who are not quite blind may in them read and see the first principles and most necessary parts of it; and from thence, as they have time and industry, may be enabled to go on to the more abstruse parts of it, and penetrate into those infinite depths filled with the treasures of wisdom and knowledge. This is that science which would truly enlarge men's minds, were it studied, or permitted to be studied every where, with that freedom, love of truth and charity which it teaches, and were not made, contrary to its nature, the occasion of strife, faction, malignity, and narrow impositions. I shall say no more here of this, but that it is undoubtedly a wrong use of my understanding, to make it the rule and measure of another man's; a use which it is neither fit for, nor capable of.

Partiality. §. 24. This partiality, where it is not permitted an authority to render all other studies insignificant or contemptible, is often indulged so far as to be relied upon, and made use of in other parts of knowledge, to which it does not at all belong, and wherewith it has no manner of affinity. Some men have so used their heads to mathematical figures; that, giving a preference to the methods of that science, they introduce lines and diagrams into their study of divinity, or politic inquiries, as if nothing could be known without them; and others accustomed to retired speculations, run natural philosophy into metaphysical notions,

and the abstract generalities of logic; and how often may one meet with religion and morality treated of in the terms of the laboratory, and thought to be improved by the methods and notions of chemistry? But he that will take care of the conduct of his understanding, to direct it right to the knowledge of things, must avoid those undue mixtures, and not, by a fondness for what he has found useful and necessary in one, transfer it to another science, where it serves only to perplex and confound the understanding. It is a certain truth, that "res nolunt malè administrari:" it is no less certain "res nolunt malè intelligi." Things themselves are to be considered as they are in themselves, and then they will show us in what way they are to be understood. For to have right conceptions about them, we must bring our understandings to the inflexible natures, and unalterable relations of things, and not endeavour to bring things to any preconceived notions of our own.

There is another partiality very commonly observable in men of study, no less prejudicial, nor ridiculous, than the former; and that is a fantastical and wild attributing all knowledge to the ancients alone, or to the moderns. This raving upon antiquity in matter of poetry, Horace has wittily described and exposed in one of his satires. The same sort of madness may be found in reference to all the other sciences. Some will not admit an opinion not authorised by men of old, who were then all giants in knowledge. Nothing is to be put into the treasury of truth or knowledge, which has not the stamp of Greece, or Rome, upon it; and since their days will scarce allow, that men have been able to see, think or write. Others, with a like extravagancy, contemn all that the ancients have left us, and being taken with the modern inventions and discoveries, lay by all that went before, as if whatever is called old must have the decay of time upon it, and truth, too, were liable to mould and rottenness. Men, I think, have been much the same for natural endowments, in all times. Fashion, discipline, and education, have put eminent differences in the ages of several countries, and made one generation much differ from another in arts and sciences: but

truth is always the same; time alters it not, nor is it the better or worse, for being of ancient or modern tradition. Many were eminent in former ages of the world for their discovery and delivery of it; but though the knowledge they have left us be worth our study, yet they exhausted not all its treasure; they left a great deal for the industry and sagacity of after-ages, and so shall we. That was once new to them, which any one now receives with veneration for its antiquity, nor was it the worse for appearing as a novelty; and that which is now embraced for its newness, will to posterity be old, but not thereby be less true, or less genuine. There is no occasion, on this account, to oppose the ancients and the moderns to one another, or to be squeamish on either side. He that wisely conducts his mind in the pursuit of knowledge, will gather what lights, and get what helps he can, from either of them, from whom they are best to be had, without adorning the errours, or rejecting the truths, which he may find mingled in them.

Another partiality may be observed, in some to vulgar, in others, to heterodox tenets: some are apt to conclude, that what is the common opinion cannot but be true; so many men's eyes they think cannot but see right; so many men's understandings of all sorts cannot be deceived; and, therefore, will not venture to look beyond the received notions of the place and age, nor have so presumptuous a thought as to be wiser than their neighbours. They are content to go with the crowd, and so go easily, which they think is going right, or at least serves them as well. But however "vox populi vox Dei" has prevailed as a maxim; yet I do not remember where ever God delivered his oracles by the multitude; or nature, truths by the herd. On the other side, some fly all common opinions as either false or frivolous. The title of many-headed beast is a sufficient reason to them to conclude, that no truths of weight or consequence can be lodged there. Vulgar opinions are suited to vulgar capacities, and adapted to the ends of those that govern. He that will know the truth of things, must leave the common and beaten

track, which none but weak and servile minds are satisfied to trudge along continually in. Such nice palates relish nothing but strange notions quite out of the way: Whatever is commonly received, has the mark of the beast on it; and they think it a lessening to them to hearken to it, or receive it; their mind runs only after paradoxes; these they seek, these they embrace, these alone they vent; and so, as they think, distinguish themselves from the vulgar. But common or uncommon are not the marks to distinguish truth or falsehood, and therefore should not be any bias to us in our inquiries. We should not judge of things by men's opinions, but of opinions by things. The multitude reason but ill, and therefore may be well suspected, and cannot be relied on, nor should be followed, as a sure guide; but philosophers, who have quitted the orthodoxy of the community, and the popular doctrines of their countries, have fallen into as extravagant and as absurd opinions as ever common reception countenanced. It would be madness to refuse to breathe the common air, or quench one's thirst with water, because the rabble use them to these purposes; and if there are conveniences of life which common use reaches not, it is not reason to reject them, because they are not grown into the ordinary fashion of the country, and every villager doth not know them.

Truth, whether in or out of fashion, is the measure of knowledge, and the business of the understanding; whatsoever is besides that, however authorised by consent, or recommended by rarity, is nothing but ignorance, or something worse.

Another sort of partiality there is, whereby men impose upon themselves; and by it make their reading little useful to themselves; I mean the making use of the opinions of writers, and laying stress upon their authorities, wherever they find them to favour their own opinions.

There is nothing almost has done more harm to men dedicated to letters, than giving the name of study to reading, and making a man of great reading to be the same with a man of great knowledge, or at least to be a

title of honour. All that can be recorded in writing are only facts or reasonings. Facts are of three sorts:

1. Merely of natural agents, observable in the ordinary operations of bodies one upon another, whether in the visible course of things left to themselves, or in experiments made by them, applying agents and patients to one another, after a peculiar and artificial manner.

2. Of voluntary agents, more especially the actions of men in society, which makes civil and moral history.

3. Of opinions.

In these three consists, as it seems to me, that which commonly has the name of learning; to which perhaps some may add a distinct head of critical writings, which indeed at bottom is nothing but matter of fact; and resolves itself into this, that such a man, or set of men, used such a word, or phrase, in such a sense; i. e. that they made such sounds the marks of such ideas.

Under reasonings I comprehend all the discoveries of general truths made by human reason, whether found by intuition, demonstration, or probable deductions. And this is that which is, if not alone knowledge, (because the truth or probability of particular propositions may be known too) yet is, as may be supposed, most properly the business of those who pretend to improve their understandings, and make themselves knowing by reading.

Books and reading are looked upon to be the great helps of the understanding, and instruments of knowledge, as it must be allowed that they are; and yet I beg leave to question whether these do not prove an hindrance to many, and keep several bookish men from attaining to solid and true knowledge. This, I think, I may be permitted to say, that there is no part wherein the understanding needs a more careful and wary conduct than in the use of books; without which they will prove rather innocent amusements, than profitable employments of our time, and bring but small additions to our knowledge.

There is not seldom to be found, even amongst those who aim at knowledge, who with an unwearied industry employ their whole time in books, who scarce allow

themselves time to eat or sleep, but read, and read, and read on, yet make no great advances in real knowledge, though there be no defect in their intellectual faculties, to which their little progress can be imputed. The mistake here is, that it is usually supposed, that by reading, the author's knowledge is transfused into the reader's understanding; and so it is, but not by bare reading, but by reading and understanding what he writ. Whereby I mean, not barely comprehending what is affirmed or denied in each proposition (though that great readers do not always think themselves concerned precisely to do) but to see and follow the train of his reasonings, observe the strength and clearness of their connexion, and examine upon what they bottom. Without this a man may read the discourses of a very rational author, writ in a language, and in propositions that he very well understands, and yet acquire not one jot of his knowledge; which consisting only in the perceived, certain, or probable connexion of the ideas made use of in his reasonings, the reader's knowledge is no farther increased than he perceives that; so much as he sees of this connexion, so much he knows of the truth, or probability, of that author's opinions.

All that he relies on, without this perception, he takes upon trust, upon the author's credit, without any knowledge of it at all. This makes me not at all wonder to see some men so abound in citations, and build so much upon authorities, it being the sole foundation on which they bottom most of their own tenets; so that, in effect, they have but a second-hand, or implicit knowledge; i. e. are in the right, if such an one from whom they borrowed it, were in the right in that opinion which they took from him; which indeed is no knowledge at all. Writers of this or former ages may be good witnesses of matter of fact which they deliver, which we may do well to take upon their authority; but their credit can go no farther than this; it cannot at all affect the truth and falsehood of opinions, which have no other sort of trial but reason and proof, which they themselves made use of to make themselves knowing, and so must others too, that will partake in their know-

ledge. Indeed it is an advantage that they have been at the pains to find out the proofs, and lay them in that order that may show the truth or probability of their conclusions; and for this we owe them great acknowledgments for saving us the pains in searching out those proofs which they have collected for us, and which possibly, after all our pains, we might not have found, nor been able to have set them in so good a light as that which they left them us in. Upon this account we are mightily beholden to judicious writers of all ages, for those discoveries and discourses they have left behind them for our instruction, if we know how to make a right use of them; which is not to run them over in an hasty perusal, and perhaps lodge their opinions, or some remarkable passages in our memories; but to enter into their reasonings, examine their proofs, and then judge of the truth or falsehood, probability or improbability, of what they advance; not by any opinion we have entertained of the author; but by the evidence he produces, and the conviction he affords us, drawn from things themselves. Knowing is seeing, and if it be so, it is madness to persuade ourselves that we do so by another man's eyes, let him use ever so many words to tell us, that what he asserts is very visible. Till we ourselves see it with our own eyes, and perceive it by our own understandings, we are as much in the dark, and as void of knowledge as before, let us believe any learned author as much as we will.

Euclid and Archimedes are allowed to be knowing, and to have demonstrated what they say; and yet whoever shall read over their writings without perceiving the connexion of their proofs, and seeing what they show, though he may understand all their words, yet he is not the more knowing; he may believe, indeed, but does not know what they say; and so is not advanced one jot in mathematical knowledge, by all his reading of those approved mathematicians.

Haste. §. 25. The eagerness and strong bent of the mind after knowledge, if not warily regulated, is often an hindrance to it. It still presses into farther discoveries and new objects, and catches at the

variety of knowledge; and therefore often stays not long enough on what is before it, to look into it as it should, for haste to pursue what is yet out of sight. He that rides post through a country, may be able, from the transient view, to tell how in general the parts lie, and may be able to give some loose description of here a mountain, and there a plain; here a morass, and there a river; woodland in one part, and savannahs in another. Such superficial ideas and observations as these he may collect in galloping over it: but the more useful observations of the soil, plants, animals, and inhabitants, with their several sorts and properties, must necessarily escape him; and it is seldom men ever discover the rich mines without some digging. Nature commonly lodges her treasure and jewels in rocky ground. If the matter be knotty, and the sense lies deep, the mind must stop and buckle to it, and stick upon it with labour and thought, and close contemplation; and not leave it till it has mastered the difficulty, and got possession of truth. But here care must be taken to avoid the other extreme: a man must not stick at every useless nicety, and expect mysteries of science in every trivial question, or scruple, that he may raise. He that will stand to pick up and examine every pebble that comes in his way, is as unlikely to return enriched and loaden with jewels, as the other that travelled full speed. Truths are not the better nor the worse for their obviousness or difficulty, but their value is to be measured by their usefulness and tendency. Insignificant observations should not take up any of our minutes; and those that enlarge our view, and give light towards farther and useful discoveries, should not be neglected, though they stop our course, and spend some of our time in a fixed attention.

There is another haste that does often, and will mislead the mind if it be left to itself, and its own conduct. The understanding is naturally forward, not only to learn its knowledge by variety (which makes it skip over one to get speedily to another part of knowledge) but also eager to enlarge its views, by running too fast into general observations and conclusions, without a due

examination of particulars enough whereon to found those general axioms. This seems to enlarge their stock, but it is of fancies, not realities; such theories built upon narrow foundations stand but weakly, and, if they fall not of themselves, are at least very hardly to be supported against the assaults of opposition. And thus men being too hasty to erect to themselves general notions and ill-grounded theories, find themselves deceived in their stock of knowledge, when they come to examine their hastily assumed maxims themselves, or to have them attacked by others. General observations drawn from particulars, are the jewels of knowledge, comprehending great store in a little room; but they are therefore to be made with the greater care and caution, lest, if we take counterfeit for true, our loss and shame be the greater when our stock comes to a severe scrutiny. One or two particulars may suggest hints of inquiry, and they do well to take those hints; but if they turn them into conclusions, and make them presently general rules, they are forward indeed, but it is only to impose on themselves by propositions assumed for truths without sufficient warrant. To make such observations is, as has been already remarked, to make the head a magazine of materials, which can hardly be called knowledge; or at least it is but like a collection of lumber not reduced to use or order; and he that makes every thing an observation, has the same useless plenty and much more falsehood mixed with it. The extremes on both sides are to be avoided, and he will be able to give the best account of his studies who keeps his understanding in the right mean between them.

Anticipation.

§. 26. Whether it be a love of that which brings the first light and information to their minds, and want of vigour and industry to inquire; or else that men content themselves with any appearance of knowledge, right or wrong; which, when they have once got, they will hold fast: this is visible, that many men give themselves up to the first anticipations of their minds, and are very tenacious of the opinions that first possess them; they are often as fond of their first conceptions as of their first-born, and

will by no means recede from the judgment they have once made, or any conjecture or conceit which they have once entertained. This is a fault in the conduct of the understanding, since this firmness or rather stiffness of the mind is not from an adherence to truth, but a submission to prejudice. It is an unreasonable homage paid to prepossession, whereby we show a reverence, not to (what we pretend to seek) truth, but what by haphazard we chance to light on, be it what it will. This is visibly a preposterous use of our faculties, and is a downright prostituting of the mind to resign it thus, and put it under the power of the first comer. This can never be allowed, or ought to be followed, as a right way to knowledge, till the understanding (whose business it is to conform itself to what it finds in the objects without) can, by its own opinionatry, change that, and make the unalterable nature of things comply with its own hasty determinations, which will never be. Whatever we fancy, things keep their course; and the habitudes, correspondencies, and relations, keep the same to one another.

Resignation.

§. 27. Contrary to these, but by a like dangerous excess, on the other side, are those who always resign their judgment to the last man they heard or read. Truth never sinks into these men's minds, nor gives any tincture to them; but, cameleon-like, they take the colour of what is laid before them, and as soon lose and resign it to the next that happens to come in their way. The order wherein opinions are proposed, or received by us, is no rule of their rectitude, nor ought to be a cause of their preference. First or last in this case, is the effect of chance, and not the measure of truth or falsehood. This every one must confess, and therefore should, in the pursuit of truth, keep his mind free from the influence of any such accidents. A man may as reasonably draw cuts for his tenets, regulate his persuasion by the cast of a dye, as take it up for its novelty, or retain it because it had his first assent, and he was never of another mind. Well-weighed reasons are to determine the judgment; those the mind should be always ready to hearken and submit to, and

by their testimony and suffrage, entertain or reject any tenet indifferently, whether it be a perfect stranger, or an old acquaintance.

Practice. §. 28. Though the faculties of the mind are improved by exercise, yet they must not be put to a stress beyond their strength. "Quid valeant "humeri, quid ferre recusent," must be made the measure of every one's understanding, who has a desire not only to perform well, but to keep up the vigour of his faculties; and not to baulk his understanding by what is too hard for it. The mind, by being engaged in a task beyond its strength, like the body, strained by lifting at a weight too heavy, has often its force broken, and thereby gets an unaptness, or an aversion, to any vigorous attempt ever after. A sinew cracked seldom recovers its former strength, or at least the tenderness of the sprain remains a good while after, and the memory of it longer, and leaves a lasting caution in the man, not to put the part quickly again to any robust employment. So it fares in the mind once jaded by an attempt above its power; it either is disabled for the future; or else checks at any vigorous undertaking ever after; at least is very hardly brought to exert its force again on any subject that requires thought and meditation. The understanding should be brought to the difficult and knotty parts of knowledge, that try the strength of thought, and a full bent of the mind, by insensible degrees; and in such a gradual proceeding nothing is too hard for it. Nor let it be objected, that such a slow progress will never reach the extent of some sciences. It is not to be imagined how far constancy will carry a man; however, it is better walking slowly in a rugged way, than to break a leg and be a cripple. He that begins with the calf may carry the ox; but he that will at first go to take up an ox, may so disable himself, as not to be able to lift up a calf after that. When the mind, by insensible degrees, has brought itself to attention and close thinking, it will be able to cope with difficulties, and master them without any prejudice to itself, and then it may go on roundly. Every abstruse problem, every intricate question, will not baffle, discourage, or

break it. But though putting the mind unprepared upon an unusual stress, that may discourage or damp it for the future, ought to be avoided; yet this must not run it, by an over-great shyness of difficulties, into a lazy sauntering about ordinary and obvious things, that demand no thought or application. This debases and enervates the understanding, makes it weak and unfit for labour. This is a sort of hovering about the surface of things, without any insight into them or penetration; and when the mind has been once habituated to this lazy recumbency and satisfaction on the obvious surface of things, it is in danger to rest satisfied there, and go no deeper; since it cannot do it without pains and digging. He that has for some time accustomed himself to take up with what easily offers itself at first view, has reason to fear he shall never reconcile himself to the fatigue of turning and tumbling things in his mind, to discover their more retired and more valuable secrets.

It is not strange that methods of learning which scholars have been accustomed to in their beginning and entrance upon the sciences should influence them all their lives, and be settled in their minds by an overruling reverence; especially if they be such as universal use has established. Learners must at first be believers, and their master's rules having been once made axioms to them, it is no wonder they should keep that dignity, and by the authority they have once got, mislead those who think it sufficient to excuse them, if they go out of their way in a well-beaten track.

§. 29. I have copiously enough spoken of the abuse of words in another place, and therefore shall upon this reflection, that the sciences are full of them, warn those that would conduct their understandings right, not to take any term, howsoever authorised by the language of the schools, to stand for any thing till they have an idea of it. A word may be of frequent use, and great credit, with several authors, and be by them made use of as if it stood for some real being; but yet, if he that reads cannot frame any distinct idea of that being, it is certainly to him a mere empty sound without a meaning; and he learns no more by all

Words.

that is said of it, or attributed to it, than if it were affirmed only of that bare empty sound. They who would advance in knowledge, and not deceive and swell themselves with a little articulated air, should lay down this as a fundamental rule, not to take words for things, nor suppose that names in books signify real entities in nature, till they can frame clear and distinct ideas of those entities. It will not perhaps be allowed, if I should set down "substantial forms" and "intentional species," as such that may justly be suspected to be of this kind of insignificant terms. But this I am sure, to one that can form no determined ideas of what they stand for, they signify nothing at all; and all that he thinks he knows about them, is to him so much knowledge about nothing, and amounts at most but to be a learned ignorance. It is not without all reason supposed, that there are many such empty terms to be found in some learned writers, to which they had recourse to etch out their systems, where their understandings could not furnish them with conceptions from things. But yet I believe the supposing of some realities in nature, answering those and the like words, have much perplexed some, and quite misled others in the study of nature. That which in any discourse signifies, "I know not what," should be considered "I know not when." Where men have any conceptions, they can, if they are never so abstruse or abstracted, explain them, and the terms they use for them. For our conceptions being nothing but ideas, which are all made up of simple ones: if they cannot give us the ideas their words stand for, it is plain they have none. To what purpose can it be, to hunt after his conceptions, who has none, or none distinct? He that knew not what he himself meant by a learned term, cannot make us know any thing by his use of it, let us beat our heads about it never so long. Whether we are able to comprehend all the operations of nature, and the manners of them, it matters not to inquire; but this is certain, that we can comprehend no more of them, than we can distinctly conceive; and therefore to obtrude terms where we have no distinct conceptions, as if they did contain, or rather conceal

something; is but an artifice of learned vanity to cover a defect in an hypothesis or our understandings. Words are not made to conceal, but to declare and show something; where they are by those, who pretend to instruct, otherwise used, they conceal indeed something; but that that they conceal is nothing but the ignorance, errour, or sophistry of the talker; for there is, in truth, nothing else under them.

Wandering.

§. 30. That there is a constant succession and flux of ideas in our minds, I have observed in the former part of this essay; and every one may take notice of it in himself. This, I suppose, may deserve some part of our care in the conduct of our understandings; and I think it may be of great advantage, if we can by use get that power over our minds, as to be able to direct that train of ideas, that so, since there will new ones perpetually come into our thoughts by a constant succession, we may be able by choice so to direct them, that none may come in view, but such as are pertinent to our present inquiry, and in such order as may be most useful to the discovery we are upon; or at least, if some foreign and unsought ideas will offer themselves, that yet we might be able to reject them, and keep them from taking off our minds from its present pursuit, and hinder them from running away with our thoughts quite from the subject in hand. This is not, I suspect, so easy to be done, as perhaps may be imagined; and yet, for aught I know, this may be, if not the chief, yet one of the great differences that carry some men in their reasoning so far beyond others, where they seem to be naturally of equal parts. A proper and effectual remedy for this wandering of thoughts I would be glad to find. He that shall propose such an one, would do great service to the studious and contemplative part of mankind, and perhaps help unthinking men to become thinking. I must acknowledge that hitherto I have discovered no other way to keep our thoughts close to their business, but the endeavouring as much as we can, and by frequent attention and application, getting the habit of attention and application. He that will observe children, will find, that even when they

endeavour their utmost, they cannot keep their minds from straggling. The way to cure it, I am satisfied, is not angry chiding or beating, for that presently fills their heads with all the ideas that fear, dread, or confusion can offer to them. To bring back gently their wandering thoughts, by leading them into the path, and going before them in the train they should pursue, without any rebuke, or so much as taking notice (where it can be avoided) of their roving, I suppose would sooner reconcile and inure them to attention, than all those rougher methods which more distract their thought, and hindering the application they would promote, introduce a contrary habit.

Distinction. §. 31. Distinction and division are (if I mistake not the import of the words) very different things; the one being the perception of a difference that nature has placed in things; the other, our making a division where there is yet none: at least, if I may be permitted to consider them in this sense, I think I may say of them, that one of them is the most necessary and conducive to true knowledge that can be; the other, when too much made use of, serves only to puzzle and confound the understanding. To observe every the least difference that is in things argues a quick and clear sight; and this keeps the understanding steady, and right in its way to knowledge. But though it be useful to discern every variety that is to be found in nature, yet it is not convenient to consider every difference that is in things, and divide them into distinct classes under every such difference. This will run us, if followed, into particulars, (for every individual has something that differences it from another) and we shall be able to establish no general truths, or else at least shall be apt to perplex the mind about them. The collection of several things into several classes, gives the mind more general and larger views; but we must take care to unite them only in that, and so far as they do agree, for so far they may be united under the consideration: for entity itself, that comprehends all things, as general as it is, may afford us clear and rational conceptions. If we would weigh and keep in our minds what it is we

are considering, that would best instruct us when we should, or should not branch into farther distinctions, which are to be taken only from a due contemplation of things; to which there is nothing more opposite than the art of verbal distinctions, made at pleasure in learned and arbitrarily invented terms, to be applied at a venture, without comprehending or conveying any distinct notions; and so altogether fitted to artificial talk, or empty noise in dispute, without any clearing of difficulties, or advance in knowledge. Whatsoever subject we examine and would get knowledge in, we should, I think, make as general and as large as it will bear; nor can there be any danger of this, if the idea of it be settled and determined: For if that be so, we shall easily distinguish it from any other idea, though comprehended under the same name. For it is to fence against the intanglements of equivocal words, and the great art of sophistry which lies in them, that distinctions have been multiplied, and their use thought so necessary. But had every distinct abstract idea a distinct known name, there would be little need of these multiplied scholastic distinctions, though there would be nevertheless as much need still of the mind's observing the differences that are in things, and discriminating them thereby one from another. It is not therefore the right way to knowledge, to hunt after, and fill the head with abundance of artificial and scholastic distinctions, wherewith learned men's writings are often filled: we sometimes find what they treat of so divided and subdivided, that the mind of the most attentive reader loses the sight of it, as it is more than probable the writer himself did; for in things crumbled into dust, it is in vain to affect or pretend order, or expect clearness. To avoid confusion by too few or too many divisions, is a great skill in thinking as well as writing, which is but the copying our thoughts; but what are the boundaries of the mean between the two vicious excesses on both hands, I think is hard to set down in words: clear and distinct ideas is all that I yet know able to regulate it. But as to verbal distinctions received and applied to common terms, i. e. equivocal words, they are more properly, I think, the busi-

ness of criticisms and dictionaries than of real knowledge and philosophy; since they, for the most part, explain the meaning of words, and give us their several significations. The dexterous management of terms, and being able to fend and prove with them, I know has and does pass in the world for a great part of learning; but it is learning distinct from knowledge; for knowledge consists only in perceiving the habitudes and relations of ideas one to another, which is done without words; the intervention of a sound helps nothing to it. And hence we see that there is least use of distinctions where there is most knowledge; I mean in mathematics, where men have determined ideas without known names to them; and so there being no room for equivocations, there is no need of distinctions. In arguing, the opponent uses as comprehensive and equivocal terms as he can, to involve his adversary in the doubtfulness of his expressions: this is expected, and therefore the answerer on his side makes it his play to distinguish as much as he can, and thinks he can never do it too much; nor can he indeed in that way wherein victory may be had without truth and without knowledge. This seems to me to be the art of disputing. Use your words as captiously as you can in your arguing on one side, and apply distinctions as much as you can on the other side to every term, to nonplus your opponent; so that in this sort of scholarship, there being no bounds set to distinguishing, some men have thought all acuteness to have lain in it; and therefore in all they have read or thought on, their great business has been to amuse themselves with distinctions, and multiply to themselves divisions; at least, more than the nature of the thing required. There seems to me, as I said, to be no other rule for this, but a due and right consideration of things as they are in themselves. He that has settled in his mind determined ideas, with names affixed to them, will be able both to discern their differences one from another; which is really distinguishing: and, where the penury of words affords not terms answering every distinct idea, will be able to apply proper distinguishing terms to the comprehensive and equivocal names he is

forced to make use of. This is all the need I know of distinguishing terms; and in such verbal distinctions, each term of the distinction, joined to that whose signification it distinguishes, is but a distinct name for a distinct idea. Where they are so, and men have clear and distinct conceptions that answer their verbal distinctions, they are right, and are pertinent as far as they serve to clear any thing in the subject under consideration. And this is that which seems to me the proper and only measure of distinctions and divisions; which he that will conduct his understanding right, must not look for in the acuteness of invention, nor the authority of writers, but will find only in the consideration of things themselves, whether he is led into it by his own meditations, or the information of books.

An aptness to jumble things together, wherein can be found any likeness, is a fault in the understanding on the other side, which will not fail to mislead it, and by thus lumping of things, hinder the mind from distinct and accurate conceptions of them.

Similies.

§. 32. To which let me here add another near of kin to this, at least in name, and that is letting the mind, upon the suggestion of any new notion, run immediately after similies to make it the clearer to itself; which, though it may be a good way, and useful in the explaining our thoughts to others; yet it is by no means a right method to settle true notions of any thing in ourselves, because similies always fail in some part, and come short of that exactness which our conceptions should have to things, if we would think aright. This indeed makes men plausible talkers; for those are always most acceptable in discourse who have the way to let their thoughts into other men's minds with the greatest ease and facility; whether those thoughts are well formed and correspond with things, matters not; few men care to be instructed but at an easy rate. They, who in their discourse strike the fancy, and take the hearers conceptions along with them as fast as their words flow, are the applauded talkers, and go for the only men of clear thoughts. Nothing contributes so much to this as similies, whereby men think they them-

selves understand better, because they are the better understood. But it is one thing to think right, and another thing to know the right way to lay our thoughts before others with advantage and clearness, be they right or wrong. Well-chosen similies, metaphors, and allegories, with method and order, do this the best of any thing, because being taken from objects already known, and familiar to the understanding, they are conceived as fast as spoken; and the correspondence being concluded, the thing they are brought to explain and elucidate is thought to be understood too. Thus fancy passes for knowledge, and what is prettily said is mistaken for solid. I say not this to decry metaphor, or with design to take away that ornament of speech; my business here is not with rhetoricians and orators, but with philosophers and lovers of truth; to whom I would beg leave to give this one rule whereby to try whether, in the application of their thoughts to any thing for the improvement of their knowledge, they do in truth comprehend the matter before them really such as it is in itself. The way to discover this is to observe whether, in the laying it before themselves or others, they make use only of borrowed representations, and ideas foreign to the things, which are applied to it by way of accommodation, as bearing some proportion or imagined likeness to the subject under consideration. Figured and metaphorical expressions do well to illustrate more abstruse and unfamiliar ideas which the mind is not yet thoroughly accustomed to; but then they must be made use of to illustrate ideas that we already have, not to paint to us those which we yet have not. Such borrowed and allusive ideas may follow real and solid truth, to set it off when found; but must by no means be set in its place, and taken for it. If all our search has yet reached no farther than similie and metaphor, we may assure ourselves we rather fancy than know, and have not yet penetrated into the inside and reality of the thing, be it what it will, but content ourselves with what our imaginations, not things themselves, furnish us with.

§. 33. In the whole conduct of the understanding, there is nothing of more moment than to know when and where, and how far to give assent; and possibly there is nothing harder. It is very easily said, and nobody questions it, that giving and withholding our assent, and the degrees of it, should be regulated by the evidence which things carry with them; and yet we see men are not the better for this rule; some firmly embrace doctrines upon slight grounds, some upon no grounds, and some contrary to appearance: some admit of certainty, and are not to be moved in what they hold: others waver in every thing, and there want not those that reject all as uncertain. What then shall a novice, an inquirer, a stranger do in the case? I answer, use his eyes. There is a correspondence in things, and agreement and disagreement in ideas, discernible in very different degrees, and there are eyes in men to see them, if they please; only their eyes may be dimmed or dazzled, and the discerning sight in them impaired or lost. Interest and passion dazzles; the custom of arguing on any side, even against our persuasions, dims the understanding, and makes it by degrees lose the faculty of discerning clearly between truth and falsehood, and so of adhering to the right side. It is not safe to play with errour, and dress it up to ourselves or others in the shape of truth. The mind by degrees loses its natural relish of real solid truth, is reconciled insensibly to any thing that can be dressed up into any feint appearance of it; and if the fancy be allowed the place of judgment at first in sport, it afterwards comes by use to usurp it; and what is recommended by this flatterer (that studies but to please) is received for good. There are so many ways of fallacy, such arts of giving colours, appearances and resemblances by this court-dresser, the fancy, that he who is not wary to admit nothing but truth itself, very careful not to make his mind subservient to any thing else, cannot but be caught. He that has a mind to believe, has half assented already; and he that by often arguing against his own sense, imposes falsehood on others, is not far from believing himself. This takes away the great distance there is betwixt truth

Assent.

and falsehood; it brings them almost together, and makes it no great odds, in things that approach so near, which you take; and when things are brought to that pass, passion, or interest, &c. easily, and without being perceived, determine which shall be the right.

Indifferency. §. 34. I have said above, that we should keep a perfect indifferency for all opinions, not wish any of them true, or try to make them appear so; but being indifferent, receive and embrace them according as evidence, and that alone, gives the attestation of truth. They that do thus, i. e. keep their minds indifferent to opinions, to be determined only by evidence, will always find the understanding has perception enough to distinguish between evidence and no evidence, betwixt plain and doubtful; and if they neither give nor refuse their assent but by that measure, they will be safe in the opinions they have. Which being perhaps but few, this caution will have also this good in it, that it will put them upon considering, and teach them the necessity of examining more than they do; without which the mind is but a receptacle of inconsistencies, not the store-house of truths. They that do not keep up this indifferency in themselves for all but truth, not supposed, but evidenced in themselves, put coloured spectacles before their eyes, and look on things through false glasses, and then think themselves excused in following the false appearances, which they themselves put upon them. I do not expect that by this way the assent should in every one be proportioned to the grounds and clearness wherewith every truth is capable to be made out; or that men should be perfectly kept from errour: that is more than human nature can by any means be advanced to; I aim at no such unattainable privilege; I am only speaking of what they should do, who would deal fairly with their own minds, and make a right use of their faculties in the pursuit of truth; we fail them a great deal more than they fail us. It is mismanagement more than want of abilities that men have reason to complain of, and which they actually do complain of in those that differ from them. He that by indifferency for all but truth, suffers not his assent

to go faster than his evidence, nor beyond it; will learn to examine, and examine fairly instead of presuming, and nobody will be at a loss, or in danger for want of embracing those truths which are necessary in his station and circumstances. In any other way but this, all the world are born to orthodoxy; they imbibe at first the allowed opinions of their country and party, and so never questioning their truth, not one of an hundred ever examines. They are applauded for presuming they are in the right. He that considers is a foe to orthodoxy, because possibly he may deviate from some of the received doctrines there. And thus men, without any industry or acquisition of their own, inherit local truths (for it is not the same every where) and are inured to assent without evidence. This influences farther than is thought; for what one of an hundred of the zealous bigots in all parties, ever examined the tenets he is so stiff in; or ever thought it his business or duty so to do? It is suspected of luke-warmness to suppose it necessary, and a tendency to apostacy to go about it. And if a man can bring his mind once to be positive and fierce for positions, whose evidence he has never once examined, and that in matters of greatest concernment to him; what shall keep him from this short and easy way of being in the right in cases of less moment? Thus we are taught to clothe our minds as we do our bodies, after the fashion in vogue, and it is accounted fantasticalness, or something worse, not to do so. This custom (which who dares oppose?) makes the short-sighted bigots, and the warier sceptics, as far as it prevails; and those that break from it are in danger of heresy: for taking the whole world, how much of it doth truth and orthodoxy possess together? Though it is by the last alone (which has the good luck to be every where) that errour and heresy are judged of: for argument and evidence signify nothing in the case, and excuse no where, but are sure to be borne down in all societies by the infallible orthodoxy of the place. Whether this be the way to truth and right assent, let the opinions that take place and prescribe in the several habitable parts of the earth, declare. I never saw any reason yet why truth might not

be trusted on its own evidence: I am sure if that be not able to support it, there is no fence against errour; and then truth and falsehood are but names that stand for the same things. Evidence therefore is that by which alone every man is (and should be) taught to regulate his assent, who is then, and then only, in the right way, when he follows it.

Men deficient in knowledge are usually in one of these three states; either wholly ignorant, or as doubting of some proposition they have either embraced formerly, or are at present inclined to; or lastly, they do with assurance hold and profess without ever having examined and being convinced by well-grounded arguments

The first of these are in the best state of the three, by having their minds yet in their perfect freedom and indifferency; the likelier to pursue truth the better, having no bias yet clapped on to mislead them.

§. 35. For ignorance, with an indifferency for truth, is nearer to it than opinion with ungrounded inclination, which is the great source of errour; and they are more in danger to go out of the way, who are marching under the conduct of a guide, that it is an hundred to one will mislead them, than he that has not yet taken a step, and is likelier to be prevailed on to inquire after the right way. The last of the three sorts are in the worst condition of all; for if a man can be persuaded and fully assured of any thing for a truth, without having examined, what is there that he may not embrace for truth? and if he has given himself up to believe a lye, what means is there left to recover one who can be assured without examining? To the other two this I crave leave to say, that as he that is ignorant is in the best state of the two, so he should pursue truth in a method suitable to that state; i. e. by inquiring directly into the nature of the thing itself, without minding the opinions of others, or troubling himself with their questions or disputes about it; but to see what he himself can, sincerely searching after truth, find out. He that proceeds upon other principles in his inquiry into any sciences, though he be resolved to examine them and judge of them freely, does yet at least put himself on

that side, and post himself in a party which he will not quit till he be beaten out; by which the mind is insensibly engaged to make what difference it can, and so is unawares biassed. I do not say but a man should embrace some opinion when he has examined, else he examines to no purpose; but the surest and safest way is to have no opinion at all till he has examined, and that without any the least regard to the opinions or systems of other men about it. For example, were it my business to understand physic, would not the safe and readier way be to consult nature herself, and inform myself in the history of diseases and their cures; than espousing the principles of the dogmatists, methodists, or chemists, to engage in all the disputes concerning either of those systems, and suppose it to be true, till I have tried what they can say to beat me out of it? Or, supposing that Hippocrates, or any other book, infallibly contains the whole art of physic; would not the direct way be to study, read, and consider that book, weigh and compare the parts of it to find the truth, rather than espouse the doctrines of any party? who, though they acknowledge his authority, have already interpreted and wire-drawn all his text to their own sense; the tincture whereof, when I have imbibed, I am more in danger to misunderstand his true meaning, than if I had come to him with a mind unprepossessed by doctors and commentators of my sect; whose reasonings, interpretation, and language, which I have been used to, will of course make all chime that way, and make another, and perhaps the genuine meaning of the authors seem harsh, strained, and uncouth to me. For words having naturally none of their own, carry that signification to the hearer, that he is used to put upon them, whatever be the sense of him that uses them. This, I think, is visibly so; and if it be, he that begins to have any doubt of any of his tenets, which he received without examination, ought, as much as he can, to put himself wholly into this state of ignorance in reference to that question; and throwing wholly by all his former notions, and the opinions of others, examine, with a perfect indifferency, the question in its source; without any inclination to either side, or any

regard to his or others unexamined opinions. This I own is no easy thing to do; but I am not inquiring the easy way to opinion, but the right way to truth; which they must follow who will deal fairly with their own understandings and their own souls.

Question. §. 36. The indifferency that I here propose will also enable them to state the question right, which they are in doubt about, without which they can never come to a fair and clear decision of it.

Perseverance. §. 37. Another fruit from this indifferency, and the considering things in themselves abstract from our own opinions and other men's notions and discourses on them, will be, that each man will pursue his thoughts in that method which will be most agreeable to the nature of the thing, and to his apprehension of what it suggests to him; in which he ought to proceed with regularity and constancy, until he come to a well-grounded resolution wherein he may acquiesce. If it be objected that this will require every man to be a scholar, and quit all his other business, and betake himself wholly to study; I answer, I propose no more to any one than he has time for. Some men's state and condition requires no great extent of knowledge; the necessary provision for life swallows the greatest part of their time. But one man's want of leisure is no excuse for the oscitancy and ignorance of those who have time to spare; and every one has enough to get as much knowledge as is required and expected of him, and he that does not that, is in love with ignorance, and is accountable for it.

Presumption. §. 38. The variety of distempers in men's minds is as great as of those in their bodies; some are epidemic, few escape them; and every one too, if he would look into himself, would find some defect of his particular genius. There is scarce any one without some idiosyncrasy that he suffers by. This man presumes upon his parts, that they will not fail him at time of need; and so thinks it superfluous labour to make any provision before-hand. His understanding is to him like Fortunatus's purse, which is always to furnish him, without ever putting any thing

into it before-hand; and so he sits still satisfied, without endeavouring to store his understanding with knowledge. It is the spontaneous product of the country, and what need of labour in tillage? Such men may spread their native riches before the ignorant; but they were best not come to stress and trial with the skilful. We are born ignorant of every thing. The superficies of things that surround them, make impressions on the negligent, but nobody penetrates into the inside without labour, attention, and industry. Stones and timber grow of themselves, but yet there is no uniform pile with symmetry and convenience to lodge in without toil and pains. God has made the intellectual world harmonious and beautiful without us; but it will never come into our heads all at once; we must bring it home piece-meal, and there set it up by our own industry, or else we shall have nothing but darkness and a chaos within, whatever order and light there be in things without us.

Despondency.

§. 39. On the other side, there are others that depress their own minds, despond at the first difficulty, and conclude that the getting an insight in any of the sciences, or making any progress in knowledge farther than serves their ordinary business, is above their capacities. These sit still, because they think they have not legs to go; as the others I last mentioned do, because they think they have wings to fly, and can soar on high when they please. To these latter one may for answer apply the proverb, "Use legs and have legs." Nobody knows what strength of parts he has till he has tried them. And of the understanding one may most truly say, that its force is greater generally than it thinks, till it is put to it. "Viresque acquirit eundo."

And therefore the proper remedy here is but to set the mind to work, and apply the thoughts vigorously to the business; for it holds in the struggles of the mind as in those of war, "Dum putant se vincere vicêre;" A persuasion that we shall overcome any difficulties that we meet with in the sciences, seldom fails to carry us through them. Nobody knows the strength of his

mind, and the force of steady and regular application, till he has tried. This is certain, he that sets out upon weak legs, will not only go farther, but grow stronger too than one, who with a vigorous constitution and firm limbs, only sits still.

Something of kin to this, men may observe in themselves, when the mind frights itself (as it often does) with any thing reflected on in gross, and transiently viewed confusedly, and at a distance. Things thus offered to the mind, carry the show of nothing but difficulty in them, and are thought to be wrapt up in impenetrable obscurity. But the truth is, these are nothing but spectres that the understanding raises to itself to flatter its own laziness. It sees nothing distinctly in things remote, and in a huddle; and therefore concludes too faintly, that there is nothing more clear to be discovered in them. It is but to approach nearer, and that mist of our own raising that inveloped them will remove; and those that in that mist appeared hideous giants not to be grappled with, will be found to be of the ordinary and natural size and shape. Things, that in a remote and confused view seem very obscure, must be approached by gentle and regular steps; and what is most visible, easy and obvious in them first considered. Reduce them into their distinct parts; and then in their due order bring all that should be known concerning every one of those parts into plain and simple questions; and then what was thought obscure, perplexed, and too hard for our weak parts, will lay itself open to the understanding in a fair view, and let the mind into that which before it was awed with, and kept at a distance from, as wholly mysterious. I appeal to my reader's experience, whether this has never happened to him, especially when, busy on one thing, he has occasionally reflected on another. I ask him whether he has never thus been scared with a sudden opinion of mighty difficulties, which yet have vanished, when he has seriously and methodically applied himself to the consideration of this seeming terrible subject; and there has been no other matter of astonishment left, but that he amused himself with so discouraging a prospect of his own rais-

ing, about a matter, which in the handling was found to have nothing in it more strange nor intricate than several other things which he had long since, and with ease mastered. This experience would teach us how to deal with such bugbears another time, which should rather serve to excite our vigour than enervate our industry. The surest way for a learner in this, as in all other cases, is not to advance by jumps and large strides; let that which he sets himself to learn next, be indeed the next; i. e. as nearly conjoined with what he knows already as is possible; let it be distinct but not remote from it: Let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as may be, that its advances may be clear and sure. All the ground that it gets this way it will hold. This distinct gradual growth in knowledge is firm and sure; it carries its own light with it in every step of its progression in an easy and orderly train; than which there is nothing of more use to the understanding. And though this perhaps may seem a very slow and lingering way to knowledge; yet I dare confidently affirm, that whoever will try it in himself, or any one he will teach, shall find the advances greater in this method, than they would in the same space of time have been in any other he could have taken. The greatest part of true knowledge lies in a distinct perception of things in themselves distinct. And some men give more clear light and knowledge by the bare distinct stating of a question, than others by talking of it in gross, whole hours together. In this, they who so state a question, do no more but separate and disentangle the parts of it one from another, and lay them, when so disentangled, in their due order. This often, without any more ado, resolves the doubt, and shows the mind where the truth lies. The agreement or disagreement of the ideas in question, when they are once separated and distinctly considered, is, in many cases, presently perceived, and thereby clear and lasting knowledge gained; whereas things in gross taken up together, and so lying together in confusion, can produce in the mind but a confused, which in effect is no, knowledge; or at least, when it

comes to be examined and made use of, will prove little better than none. I therefore take the liberty to repeat here again what I have said elsewhere, that in learning any thing as little should be proposed to the mind at once as is possible; and, that being understood and fully mastered, to proceed to the next adjoining part yet unknown; simple, unperplexed proposition belonging to the matter in hand, and tending to the clearing what is principally designed.

Analogy. §. 40. Analogy is of great use to the mind in many cases, especially in natural philosophy; and that part of it chiefly which consists in happy and successful experiments. But here we must take care that we keep ourselves within that wherein the analogy consists. For example, the acid oil of vitriol is found to be good in such a case, therefore the spirit of nitre or vinegar may be used in the like case. If the good effect of it be owing wholly to the acidity of it, the trial may be justified; but if there be something else besides the acidity in the oil of vitriol, which produces the good we desire in the case; we mistake that for analogy, which is not, and suffer our understanding to be misguided by a wrong supposition of analogy where there is none.

Association. §. 41. Though I have, in the second book of my essay concerning human understanding, treated of the association of ideas; yet having done it there historically, as giving a view of the understanding in this as well as its several other ways of operating, rather than designing there to inquire into the remedies that ought to be applied to it; it will, under this latter consideration, afford other matter of thought to those who have a mind to instruct themselves thoroughly in the right way of conducting their understandings; and that the rather, because this, if I mistake not, is as frequent a cause of mistake and errour in us, as perhaps any thing else that can be named; and is a disease of the mind as hard to be cured as any; it being a very hard thing to convince any one that things are not so, and naturally so, as they constantly appear to him.

By this one easy and unheeded miscarriage of the understanding, sandy and loose foundations become infallible principles, and will not suffer themselves to be touched or questioned; such unnatural connexions become by custom as natural to the mind as sun and light, fire and warmth go together, and so seem to carry with them as natural an evidence as self-evident truths themselves. And where then shall one with hopes of success begin the cure? Many men firmly embrace falsehood for truth; not only because they never thought otherwise; but also because, thus blinded as they have been from the beginning, they never could think otherwise; at least without a vigour of mind able to contest the empire of habit, and look into its own principles; a freedom which few men have the notion of in themselves, and fewer are allowed the practice of by others; it being the great art and business of the teachers and guides in most sects to suppress, as much as they can, this fundamental duty which every man owes himself, and is the first steady step towards right and truth in the whole train of his actions and opinions. This would give one reason to suspect, that such teachers are conscious to themselves of the falsehood or weakness of the tenets they profess, since they will not suffer the grounds whereon they are built to be examined; whereas those who seek truth only, and desire to own and propagate nothing else, freely expose their principles to the test; are pleased to have them examined; give men leave to reject them if they can; and if there be any thing weak and unsound in them, are willing to have it detected, that they themselves as well as others, may not lay any stress upon any received proposition beyond what the evidence of its truths will warrant and allow.

There is, I know, a great fault among all sorts of people of principling their children and scholars; which at last, when looked into, amounts to no more, but making them imbibe their teacher's notions and tenets by an implicit faith, and firmly to adhere to them whether true or false. What colours may be given to this, or of what use it may be when practised upon the vulgar, destined to labour, and given up to the service of

their bellies, I will not here inquire. But as to the ingenuous part of mankind, whose condition allows them leisure, and letters, and inquiry after truth; I can see no other right way of principling them, but to take heed, as much as may be, that in their tender years, ideas, that have no natural cohesion, come not to be united in their heads; and that this rule be often inculcated to them to be their guide in the whole course of their lives and studies, viz. that they never suffer any ideas to be joined in their understandings, in any other or stronger combination than what their own nature and correspondence give them; and that they often examine those that they find linked together in their minds; whether this association of ideas be from the visible agreement that is in the ideas themselves, or from the habitual and prevailing custom of the mind joining them thus together in thinking.

This is for caution against this evil, before it be thoroughly riveted by custom in the understanding; but he, that would cure it when habit has established it, must nicely observe the very quick and almost imperceptible motions of the mind in its habitual actions. What I have said in another place about the change of the ideas of sense into those of judgment, may be proof of this. Let any one not skilled in painting be told when he sees bottles and tobacco-pipes, and other things so painted, as they are in some places shown; that he does not see protuberances, and you will not convince him but by the touch: He will not believe that by an instantaneous legerdemain of his own thoughts, one idea is substituted for another. How frequent instances may one meet with of this in the arguings of the learned, who not seldom, in two ideas that they have been accustomed to join in their minds, substitute one for the other; and, I am apt to think, often without perceiving it themselves? This, whilst they are under the deceit of it, makes them incapable of conviction, and they applaud themselves as zealous champions for truth, when indeed they are contending for errour. And the confusion of two different ideas, which a customary connexion of them in their minds hath made to them almost

one, fills their head with false views, and their reasonings with false consequences.

§. 42. Right understanding consists in the discovery and adherence to truth, and that in the perception of the visible or probable agreement or disagreement of ideas, as they are affirmed and denied one of another. From whence it is evident, that the right use and conduct of the understanding, whose business is purely truth and nothing else, is, that the mind should be kept in a perfect indifferency, not inclining to either side, any farther than evidence settles it by knowledge, or the overbalance of probability gives it the turn of assent and belief; but yet it is very hard to meet with any discourse wherein one may not perceive the author not only maintain (for that is reasonable and fit) but inclined and biassed to one side of the question, with marks of a desire that that should be true. If it be asked me, how authors who have such a bias and lean to it may be discovered? I answer, by observing how in their writings or arguings they are often led by their inclinations to change the ideas of the question, either by changing the terms, or by adding and joining others to them, whereby the ideas under consideration are so varied, as to be more serviceable to their purpose, and to be thereby brought to an easier and nearer agreement, or more visible and remoter disagreement one with another. This is plain and direct sophistry; but I am far from thinking, that wherever it is found it is made use of with design to deceive and mislead the readers. It is visible that men's prejudices and inclinations by this way impose often upon themselves; and their affection for truth, under their prepossession in favour of one side, is the very thing that leads them from it. Inclination suggests and slides into their discourse favourable terms, which introduce favourable ideas; till at last by this means that is concluded clear and evident, thus dressed up, which, taken in its native state, by making use of none but the precise determined ideas, would find no admittance at all. The putting these glosses on what they affirm, these, as they are thought, handsome, easy and graceful explications of

Fallacies.

what they are discoursing on, is so much the character of what is called and esteemed writing well, that it is very hard to think that authors will ever be persuaded to leave what serves so well to propagate their opinions, and procure themselves credit in the world, for a more jejune and dry way of writing, by keeping to the same terms precisely annexed to the same ideas; a sour and blunt stiffness tolerable in mathematicians only, who force their way, and make truth prevail by irresistible demonstration.

But yet if authors cannot be prevailed with to quit the looser, though more insinuating ways of writing; if they will not think fit to keep close to truth and instruction by unvaried terms, and plain unsophisticated arguments; yet it concerns readers not to be imposed on by fallacies, and the prevailing ways of insinuation. To do this, the surest and most effectual remedy is to fix in the mind the clear and distinct ideas of the question stripped of words; and so likewise in the train of argumentation, to take up the author's ideas, neglecting his words, observing how they connect or separate those in the question. He that does this will be able to cast off all that is superfluous; he will see what is pertinent, what coherent, what is direct to, what slides by the question. This will readily show him all the foreign ideas in the discourse, and where they were brought in; and though they perhaps dazzled the writer; yet he will perceive that they give no light nor strength to his reasonings.

This, though it be the shortest and easiest way of reading books with profit, and keeping one's self from being misled by great names or plausible discourses; yet it being hard and tedious to those who have not accustomed themselves to it; it is not to be expected that every one (amongst those few who really pursue truth) should this way guard his understanding from being imposed on by the wilful, or at least undesigned sophistry, which creeps into most of the books of argument. They that write against their conviction, or that, next to them, are resolved to maintain the tenets of a party they were engaged in, cannot be supposed to reject any arms

that may help to defend their cause, and therefore such should be read with the greatest caution. And they, who write for opinions they are sincerely persuaded of, and believe to be true, think they may so far allow themselves to indulge their laudable affection to truth, as to permit their esteem of it to give it the best colours, and set it off with the best expressions and dress they can, thereby to gain it the easiest entrance into the minds of their readers, and fix it deepest there.

One of those being the state of mind we may justly suppose most writers to be in, it is fit their readers, who apply to them for instruction, should not lay by that caution which becomes a sincere pursuit of truth, and should make them always watchful against whatever might conceal or misrepresent it. If they have not the skill of representing to themselves the author's sense by pure ideas separated from sounds, and thereby divested of the false lights and deceitful ornaments of speech; this yet they should do, they should keep the precise question steadily in their minds, carry it along with them through the whole discourse, and suffer not the least alteration in the terms either by addition, subtraction, or substituting any other. This every one can do who has a mind to it; and he that has not a mind to it, it is plain, makes his understanding only the warehouse of other men's lumber; I mean false and unconcluding reasonings, rather than a repository of truth for his own use; which will prove substantial, and stand him in stead, when he has occasion for it. And whether such an one deals fairly by his own mind, and conducts his own understanding right, I leave to his own understanding to judge.

Fundamental verities.

§. 43. The mind of man being very narrow, and so slow in making acquaintance with things, and taking in new truths, that no one man is capable, in a much longer life than ours, to know all truths; it becomes our prudence, in our search after knowledge, to employ our thoughts about fundamental and material questions, carefully avoiding those that are trifling, and not suffering ourselves to be diverted from our main even purpose, by those that are

merely incidental. How much of many young men's time is thrown away in purely logical inquiries, I need not mention. This is no better than if a man, who was to be a painter, should spend all his time in examining the threads of the several cloths he is to paint upon, and counting the hairs of each pencil and brush he intends to use in the laying on of his colours. Nay, it is much worse than for a young painter to spend his apprenticeship in such useless niceties; for he, at the end of all his pains to no purpose, finds that it is not painting, nor any help to it, and so is really to no purpose: whereas men designed for scholars have often their heads so filled and warmed with disputes on logical questions, that they take those airy useless notions for real and substantial knowledge, and think their understandings so well furnished with science, that they need not look any farther into the nature of things, or descend to the mechanical drudgery of experiment and inquiry. This is so obvious a mismanagement of the understanding, and that in the professed way to knowledge, that it could not be passed by: to which might be joined abundance of questions, and the way of handling of them in the schools. What faults in particular of this kind, every man is, or may be guilty of, would be infinite to enumerate; it suffices to have shown that superficial and slight discoveries and observations that contain nothing of moment in themselves, nor serve as clues to lead us into farther knowledge, should not be thought worth our searching after.

There are fundamental truths that lie at the bottom, the basis upon which a great many others rest, and in which they have their consistency. These are teeming truths, rich in store, with which they furnish the mind, and, like the lights of heaven, are not only beautiful and entertaining in themselves, but give light and evidence to other things, that without them could not be seen or known. Such is that admirable discovery of Mr. Newton, that all bodies gravitate to one another, which may be counted as the basis of natural philosophy; which, of what use it is to the understanding of the great frame of our solar system, he has to the asto-

nishment of the learned world shown; and how much farther it would guide us in other things, if rightly pursued, is not yet known. Our Saviour's great rule, that "we should love our neighbour as ourselves," is such a fundamental truth for the regulating human society, that, I think, by that alone, one might without difficulty determine all the cases and doubts in social morality. These and such as these are the truths we should endeavour to find out, and store our minds with. Which leads me to another thing in the conduct of the understanding that is no less necessary, viz.

Bottoming.

§. 44. To accustom ourselves, in any question proposed, to examine and find out upon what it bottoms. Most of the difficulties that come in our way, when well considered and traced, lead us to some proposition, which, known to be true, clears the doubt, and gives an easy solution of the question; whilst topical and superficial arguments, of which there is store to be found on both sides, filling the head with variety of thoughts, and the mouth with copious discourse, serve only to amuse the understanding, and entertain company without coming to the bottom of the question, the only place of rest and stability for an inquisitive mind, whose tendency is only to truth and knowledge.

For example, if it be demanded, whether the grand seignior can lawfully take what he will from any of his people? This question cannot be resolved without coming to a certainty, whether all men are naturally equal; for upon that it turns; and that truth well settled in the understanding, and carried in the mind through the various debates concerning the various rights of men in society, will go a great way in putting an end to them, and showing on which side the truth is.

Transferring of thoughts.

§. 45. There is scarce any thing more for the improvement of knowledge, for the ease of life, and the dispatch of business, than for a man to be able to dispose of his own thoughts; and there is scarce any thing harder in the whole conduct of the understanding than to get a full mastery over it. The mind, in a waking man, has always some

object that it applies itself to; which, when we are lazy or unconcerned, we can easily change, and at pleasure transfer our thoughts to another, and from thence to a third, which has no relation to either of the former. Hence men forwardly conclude, and frequently say, nothing is so free as thought, and it were well it were so; but the contrary will be found true in several instances; and there are many cases wherein there is nothing more resty and ungovernable than our thoughts: They will not be directed what objects to pursue, nor be taken off from those they have once fixed on; but run away with a man in pursuit of those ideas they have in view, let him do what he can.

I will not here mention again what I have above taken notice of, how hard it is to get the mind, narrowed by a custom of thirty or forty years standing to a scanty collection of obvious and common ideas, to enlarge itself to a more copious stock, and grow into an acquaintance with those that would afford more abundant matter of useful contemplation; it is not of this I am here speaking. The inconveniency I would here represent, and find a remedy for, is the difficulty there is sometimes to transfer our minds from one subject to another, in cases where the ideas are equally familiar to us.

Matters, that are recommended to our thoughts by any of our passions, take possession of our minds with a kind of authority, and will not be kept out or dislodged; but, as if the passion that rules were, for the time, the sheriff of the place, and came with all the posse, the understanding is seized and taken with the object it introduces, as if it had a legal right to be alone considered there. There is scarce any body, I think, of so calm a temper who hath not some time found this tyranny on his understanding, and suffered under the inconvenience of it. Who is there almost, whose mind, at some time or other, love or anger, fear or grief, has not so fastened to some clog, that it could not turn itself to any other object? I call it a clog, for it hangs upon the mind so as to hinder its vigour and activity in the pursuit of other contemplations; and advances itself little or not at all in the knowledge of the thing which it so closely hugs

and constantly pores on. Men thus possessed, are sometimes as if they were so in the worse sense, and lay under the power of an enchantment. They see not what passes before their eyes; hear not the audible discourse of the company; and when by any strong application to them they are roused a little, they are like men brought to themselves from some remote region; whereas in truth they come no farther than their secret cabinet within, where they have been wholly taken up with the puppet, which is for that time appointed for their entertainment. The shame that such dumps cause to well-bred people, when it carries them away from the company, where they should bear a part in the conversation, is a sufficient argument, that it is a fault in the conduct of our understanding, not to have that power over it as to make use of it to those purposes, and on those occasions wherein we have need of its assistance. The mind should be always free and ready to turn itself to the variety of objects that occur, and allow them as much consideration as shall for that time be thought fit. To be engrossed so by one object; as not to be prevailed on to leave it for another that we judge fitter for our contemplation, is to make it of no use to us. Did this state of mind remain always so, every one would, without scruple, give it the name of perfect madness; and whilst it does last, at whatever intervals it returns, such a rotation of thoughts about the same object no more carries us forward towards the attainment of knowledge, than getting upon a mill-horse whilst he jogs on in his circular track would carry a man a journey.

I grant something must be allowed to legitimate passions, and to natural inclinations. Every man, besides occasional affections, has beloved studies, and those the mind will more closely stick to; but yet it is best that it should be always at liberty, and under the free disposal of the man, and to act how and upon what he directs. This we should endeavour to obtain, unless we would be content with such a flaw in our understanding, that sometimes we should be as it were without it; for it is very little better than so in cases where we cannot make

use of it to those purposes we would, and which stand in present need of it.

But before fit remedies can be thought on for this disease, we must know the several causes of it, and thereby regulate the cure, if we will hope to labour with success.

One we have already instanced in, whereof all men that reflect have so general a knowledge, and so often an experience in themselves, that nobody doubts of it. A prevailing passion so pins down our thoughts to the object and concern of it, that a man passionately in love cannot bring himself to think of his ordinary affairs, or a kind mother, drooping under the loss of a child, is not able to bear a part as she was wont in the discourse of the company or conversation of her friends.

But though passion be the most obvious and general, yet it is not the only cause that binds up the understanding, and confines it for the time to one object, from which it will not be taken off.

Besides this, we may often find that the understanding, when it has a while employed itself upon a subject which either chance, or some slight accident, offered to it, without the interest or recommendation of any passion; works itself into a warmth, and by degrees gets into a career, wherein, like a bowl down a hill, it increases its motion by going, and will not be stopped or diverted; though, when the heat is over, it sees all this earnest application was about a trifle not worth a thought, and all the pains employed about it lost labour.

There is a third sort, if I mistake not, yet lower than this; it is a sort of childishness, if I may so say, of the understanding, wherein, during the fit, it plays with and dandles some insignificant puppet to no end, nor with any design at all, and yet cannot easily be got off from it. Thus some trivial sentence, or a scrap of poetry, will sometimes get into men's heads, and make such a chiming there, that there is no stilling of it; no peace to be obtained, nor attention to any thing else, but this impertinent guest will take up the mind and possess the thoughts in spite of all endeavours to get rid of it. Whether every one hath experimented in

themselves this troublesome intrusion of some frisking ideas which thus importune the understanding, and hinder it from being better employed, I know not. But persons of very good parts, and those more than one, I have heard speak and complain of it themselves. The reason I have to make this doubt, is from what I have known in a case something of kin to this, though much odder, and that is of a sort of visions that some people have lying quiet, but perfectly awake, in the dark, or with their eyes shut. It is a great variety of faces, most commonly very odd ones, that appear to them in a train one after another; so that having had just the sight of the one, it immediately passes away to give place to another, that the same instant succeeds, and has as quick an exit as its leader; and so they march on in a constant succession; nor can any one of them by any endeavour be stopped or retained beyond the instant of its appearance, but is thrust out by its follower, which will have its turn. Concerning this fantastical phænomenon I have talked with several people, whereof some have been perfectly acquainted with it, and others have been so wholly strangers to it, that they could hardly be brought to conceive or believe it. I knew a lady of excellent parts, who had got past thirty without having ever had the least notice of any such thing; she was so great a stranger to it, that when she heard me and another talking of it, could scarce forbear thinking we bantered her; but some time after drinking a large dose of dilute tea, (as she was ordered by a physician) going to bed, she told us at next meeting, that she had now experimented what our discourse had much ado to persuade her of. She had seen a great variety of faces in a long train, succeeding one another as we had described; they were all strangers and intruders, such as she had no acquaintance with before, nor sought after them; and as they came of themselves they went too; none of them stayed a moment, nor could be detained by all the endeavours she could use, but went on in their solemn procession, just appeared and then vanished. This odd phænomenon seems to have a mechanical cause, and to depend

upon the matter or motion of the blood or animal spirits.

When the fancy is bound by passion, I know no way to set the mind free and at liberty, to prosecute what thoughts the man would make choice of, but to allay the present passion, or counterbalance it with another; which is an art to be got by study, and acquaintance with the passions.

Those who find themselves apt to be carried away with the spontaneous current of their own thoughts, not excited by any passion or interest, must be very wary and careful in all the instances of it to stop it, and never humour their minds in being thus triflingly busy. Men know the value of their corporeal liberty, and therefore suffer not willingly fetters and chains to be put upon them. To have the mind captivated is, for the time, certainly the greater evil of the two, and deserves our utmost care and endeavours to preserve the freedom of our better part. In this case our pains will not be lost; striving and struggling will prevail, if we constantly, on all such occasions, make use of it. We must never indulge these trivial attentions of thought; as soon as we find the mind makes itself a business of nothing, we should immediately disturb and check it, introduce new and more serious considerations, and not leave till we have beaten it off from the pursuit it was upon. This, at first, if we have let the contrary practice grow to an habit, will perhaps be difficult; but constant endeavours will by degrees prevail, and at last make it easy. And when a man is pretty well advanced, and can command his mind off at pleasure from incidental and undesigned pursuits, it may not be amiss for him to go on farther, and make attempts upon meditations of greater moment, that at the last he may have a full power over his own mind, and be so fully master of his own thoughts, as to be able to transfer them from one subject to another, with the same ease that he can lay by any thing he has in his hand, and take something else that he has a mind to in the room of it. This liberty of mind is of great use both in business and study,

and he that has got it will have no small advantage of ease and dispatch in all that is the chosen and useful employment of his understanding.

The third and last way which I mentioned the mind to be sometimes taken up with, I mean the chiming of some particular words or sentence in the memory, and, as it were, making a noise in the head, and the like, seldom happens but when the mind is lazy, or very loosely and negligently employed. It were better indeed to be without such impertinent and useless repetitions; any obvious idea, when it is roving carelessly at a venture, being of more use, and apter to suggest something worth consideration, than the insignificant buzz of purely empty sounds. But since the rousing of the mind, and setting the understanding on work with some degrees of vigour, does for the most part presently set it free from these idle companions; it may not be amiss, whenever we find ourselves troubled with them, to make use of so profitable a remedy that is always at hand.

SOME THOUGHTS

CONCERNING

READING AND STUDY

FOR A

GENTLEMAN.

SOME THOUGHTS

CONCERNING

READING AND STUDY

FOR A

GENTLEMAN.

READING is for the improvement of the understanding.

The improvement of the understanding is for two ends; first, for our own increase of knowledge; secondly, to enable us to deliver and make out that knowledge to others.

The latter of these, if it be not the chief end of study in a gentleman; yet it is at least equal to the other, since the greatest part of his business and usefulness in the world is by the influence of what he says, or writes to others.

The extent of our knowledge cannot exceed the extent of our ideas. Therefore he, who would be universally knowing, must acquaint himself with the objects of all sciences. But this is not necessary to a gentleman, whose proper calling is the service of his country; and so is most properly concerned in moral and political knowledge; and thus the studies, which more immediately belong to his calling, are those which treat of virtues and vices, of civil society, and the arts of government; and will take in also law and history.

It is enough for a gentleman to be furnished with the ideas belonging to his calling, which he will find in the books that treat of the matters above-mentioned.

But the next step towards the improvement of his understanding, must be, to observe the connexion of these ideas in the propositions, which those books hold forth, and pretend to teach as truths; which till a man can judge, whether they be truths or no, his understanding is but little improved; and he doth but think and talk after the books that he hath read, without having any knowledge thereby. And thus men of much reading are greatly learned, but may be little knowing.

The third and last step therefore, in improving the understanding, is to find out upon what foundation any proposition advanced bottoms; and to observe the connexion of the intermediate ideas, by which it is joined to that foundation, upon which it is erected, or that principle, from which it is derived. This, in short, is right reasoning; and by this way alone true knowledge is to be got by reading and studying.

When a man, by use, hath got this faculty of observing and judging of the reasoning and coherence of what he reads, and how it proves what it pretends to teach; he is then, and not till then, in the right way of improving his understanding, and enlarging his knowledge by reading.

But that, as I have said, being not all that a gentleman should aim at in reading, he should farther take care to improve himself in the art also of speaking, that so he may be able to make the best use of what he knows.

The art of speaking well consists chiefly in two things, viz. perspicuity and right reasoning.

Perspicuity consists in the using of proper terms for the ideas or thoughts, which he would have pass from his own mind into that of another man. It is this, that gives them an easy entrance; and it is with delight, that men hearken to those, whom they easily understand; whereas what is obscurely said, dying, as it is spoken, is usually not only lost, but creates a prejudice in the hearer, as if he that spoke knew not what he said, or was afraid to have it understood.

The way to obtain this, is to read such books as are allowed to be writ with the greatest clearness and pro-

priety, in the language that a man uses. An author excellent in this faculty, as well as several others, is Dr. Tillotson, late archbishop of Canterbury, in all that is published of his. I have chosen rather to propose this pattern, for the attainment of the art of speaking clearly, than those who give rules about it: since we are more apt to learn by example, than by direction. But if any one hath a mind to consult the masters in the art of speaking and writing, he may find in Tully "De Oratore," and another treatise of his called, Orator; and in Quintilian's Institutions; and Boileau's "Traité du Sublime"*; instructions concerning this, and the other parts of speaking well.

Besides perspicuity, there must be also right reasoning; without which, perspicuity serves but to expose the speaker. And for the attaining of this, I should propose the constant reading of Chillingworth, who by his example will teach both perspicuity, and the way of right reasoning, better than any book that I know; and therefore will deserve to be read upon that account over and over again; not to say any thing of his argument.

Besides these books in English, Tully, Terence, Virgil, Livy, and Cæsar's Commentaries, may be read to form one's mind to a relish of a right way of speaking and writing.

The books I have hitherto mentioned have been in order only to writing and speaking well; not but that they will deserve to be read upon other accounts.

The study of morality, I have above mentioned as that that becomes a gentleman; not barely as a man, but in order to his business as a gentleman. Of this there are books enough writ both by ancient and modern philosophers; but the morality of the gospel doth so exceed them all, that, to give a man a full knowledge of true morality, I shall send him to no other book, but the New Testament. But if he hath a mind to see how far the heathen world carried that science, and whereon they bottomed their ethics, he will be delightfully and

* That treatise is a translation from Longinus.

profitably entertained in Tully's Treatises "De Officiis."

Politics contains two parts, very different the one from the other. The one, containing the original of societies, and the rise and extent of political power; the other, the art of governing men in society.

The first of these hath been so bandied amongst us, for these sixty years backward, that one can hardly miss books of this kind. Those, which I think are most talked of in English, are the first book of Mr. Hooker's "Ecclesiastical Polity," and Mr. Algernon Sydney's "Discourses concerning Government." The latter of these I never read. Let me here add, "Two Treatises of Government," printed in 1690*; and a Treatise of "Civil Polity," printed this year †. To these one may add, Puffendorf "De Officio Hominis & Civis," and "De Jure Naturali & Gentium;" which last is the best book of that kind.

As to the other part of politics, which concerns the art of government; that, I think, is best to be learned by experience and history, especially that of a man's own country. And therefore I think an English gentleman should be well versed in the history of England, taking his rise as far back as there are any records of it; joining with it the laws that were made in the several ages, as he goes along in his history; that he may observe from thence the several turns of state, and how they have been produced. In Mr. Tyrrel's History of England, he will find all along those several authors which have treated of our affairs, and which he may have recourse to, concerning any point, which either his curiosity or judgment shall lead him to inquire into.

With the history, he may also do well to read the ancient lawyers; such as Bracton, "Fleta," Henningham, "Mirrour of Justice," my lord Coke's "Second Institutes," and the "Modus tenendi Parliamentum;" and others of that kind which he may find quoted in

* These two treatises are written by Mr. Locke himself.

† "Civil Polity. A treatise concerning the nature of government." &c. London 1703, in 8vo. Written by Peter Paxton, M. D.

the late controversies between Mr. Petit, Mr. Tyrrel, Mr. Atwood, &c. with Dr. Brady; as also, I suppose, in Sedler's Treatise of "Rights of the Kingdom, and "Customs of our Ancestors," whereof the first edition is the best; wherein he will find the ancient constitution of the government of England.

There are two volumes of "State Tracts" printed since the revolution, in which there are many things relating to the government of England *.

As for general history, Sir Walter Raleigh and Dr. Howell, are books to be had. He, who hath a mind to launch farther into that ocean, may consult Whear's "Methodus legendi Historias," of the last edition; which will direct him to the authors he is to read, and the method wherein he is to read them.

To the reading of history, chronology and geography are absolutely necessary.

In geography, we have two general ones in English, Heylin and Moll; which is the best of them, I know not; having not been much conversant in either of them. But the last, I should think to be of most use; because of the new discoveries that are made every day, tending to the perfection of that science. Though, I believe, that the countries, which Heylin mentions, are better treated of by him, bating what new discoveries since his time have added.

These two books contain geography in general, but whether an English gentleman would think it worth his time to bestow much pains upon that; though without it he cannot well understand a Gazette; it is certain he cannot well be without Camden's "Britannia," which is much enlarged in the last English edition. A good collection of maps is also necessary.

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* We have now two collections of state tracts; one, in two volumes in folio, printed in 1689 and 1692, contains several treatises relating to the government from the year 1660 to 1689; and the other, in three volumes in folio, printed in 1705, 1706, and 1707, is a "Collection of tracts, published on occasion of the late revolution in 1688, and during the reign of K. William III." These collections might have been made more complete and more convenient; especially the first, which is extremely defective and incorrect.

To geography, books of travels may be added. In that kind, the collections made by our countrymen, Hackluyt and Purchas, are very good. There is also a very good collection made by Thevenot in folio, in French; and by Ramuzion, in Italian; whether translated into English or no, I know not. There are also several good books of travels of Englishmen published, as Sandys, Roe, Brown, Gage, and Dampier.

There are also several voyages in French, which are very good, as Pyrard*, Bergeron†, Sagard‡, Bernier‖, &c. whether all of them are translated into English, I know not.

There is at present a very good "collection of voyages and travels," never before in English, and such as are out of print; now printing by Mr. Churchill¶.

There are besides these a vast number of other travels; a sort of books that have a very good mixture of delight and usefulness. To set them down all, would take up too much time and room. Those I have mentioned are enough to begin with.

As to chronology, I think Helvicus the best for common use; which is not a book to be read, but to lie by, and be consulted upon occasion. He that hath a mind to look farther into chronology, may get Tallent's "Tables," and Strauchius's "Breviarium Temporum," and may to those add Scaliger "De Emendatione Temporum," and Petavius, if he hath a mind to engage deeper in that study.

Those, who are accounted to have writ best particular parts of our English history, are Bacon, of Henry

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* "Voyage de Francois Pyrard de Laval. Contenant sa navigation aux Indes Orientales, Maldives, Moluques, Bresil." Paris 1619, 8vo. 3d edit.

† "Relation des voyages en Tartarie, &c. Le tout recueilli par Pierre Bergeron." Paris 1634, 8vo.

‡ "Le grand voyage des Hurons, situés en l'Amerique, &c. Par F. Gab. Sagard Theodat." Paris 1632, 8vo.

‖ "Memoires de l'empire du Grand Mogol, &c. par Francois Bernier." Paris 1670 & 1671, 3 vol. in 12mo.

¶ That collection of voyages and travels was published an. 1704, in 4 vol. in fol.

VII; and Herbert of Henry VIII. Daniel also is commended; and Burnet's "History of the Reformation." Mariana's "History of Spain," and Thuanus's "History of his own Time," and Philip de Comines; are of great and deserved reputation.

There are also several French and English memoirs and collections, such as la Rochefoucault, Melvil, Rushworth, &c. which give a great light to those who have a mind to look into what hath past in Europe this last age.

To fit a gentleman for the conduct of himself, whether as a private man, or as interested in the government of his country, nothing can be more necessary than the knowledge of men; which, though it be to be had chiefly from experience, and, next to that, from a judicious reading of history; yet there are books that of purpose treat of human nature, which help to give an insight into it. Such are those treating of the passions, and how they are moved; whereof Aristotle in his second book of Rhetoric hath admirably discoursed, and that in a little compass. I think this Rhetoric is translated into English; if not, it may be had in Greek and Latin together.

La Bruyere's "Characters" are also an admirable piece of painting; I think it is also translated out of French into English.

Satyrical writings also, such as Juvenal, and Persius, and above all Horace: though they paint the deformities of men, yet they thereby teach us to know them.

There is another use of reading, which is for diversion and delight. Such are poetical writings, especially dramatic, if they be free from prophaneness, obscenity, and what corrupts good manners; for such pitch should not be handled.

Of all the books of fiction, I know none that equals "Cervantes's History of Don Quixote" in usefulness, pleasantry, and a constant decorum. And indeed no writings can be pleasant, which have not nature at the bottom, and are not drawn after her copy.

There is another sort of books, which I had almost forgot, with which a gentleman's study ought to be well

furnished, viz. dictionaries of all kinds. For the Latin tongue, Littleton, Cooper, Calepin, and Robert Stephens's "Thesaurus Linguæ Latinæ," and "Vossii "Etymologicum Linguæ Latinæ." Skinner's "Lexi- "con Etymologicum," is an excellent one of that kind, for the English tongue. Cowell's "Interpreter" is useful for the law terms. Spelman's "Glossary" is a very useful and learned book. And Selden's "Titles of "Honour," a gentleman should not be without. Baudrand hath a very good "Geographical Dictionary." And there are several historical ones, which are of use; as Lloyd's, Hoffman's, Moreri's. And Bayle's incomparable dictionary, is something of the same kind. He that hath occasion to look into books written in Latin since the decay of the Roman empire, and the purity of the Latin tongue, cannot be well without Du Cange's "Glossarium mediæ & infimæ Latinitatis."

Among the books above set down, I mentioned Vossius's "Etymologicum Linguæ Latinæ;" all his works are lately printed in Holland in six tomes. They are fit books for a gentleman's library, containing very earned discourses concerning all the sciences.

ELEMENTS

OF

NATURAL PHILOSOPHY.

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CHAP. I.

Of Matter and Motion.

MATTER is an extended solid substance; which being comprehended under distinct surfaces, makes so many particular distinct bodies.

Motion is so well known by the sight and touch, that to use words to give a clear idea of it, would be in vain.

Matter, or body, is indifferent to motion, or rest.

There is as much force required to put a body, which is in motion, at rest; as there is to set a body, which is at rest, into motion.

No parcel of matter can give itself either motion or rest, and therefore a body at rest will remain so eternally, except some external cause puts it in motion; and a body in motion will move eternally, unless some external cause stops it.

A body in motion will always move on in a straight line, unless it be turned out of it by some external cause; because a body can no more alter the determination of its motion, than it can begin it, alter or stop its motion itself.

The swiftness of motion is measured by distance of place and length of time wherein it is performed. For instance, if A and B, bodies of equal or different bigness, move each of them an inch in the same time; their motions are equally swift; but if A moves two inches,

in the time whilst B is moving one inch; the motion of A is twice as swift as that of B.

The quantity of motion is measured by the swiftness of the motion, and the quantity of the matter moved, taken together. For instance, if A, a body equal to B, moves as swift as B; then it hath an equal quantity of motion. If A hath twice as much matter as B, and moves equally as swift, it hath double the quantity of motion; and so in proportion.

It appears, as far as human observation reaches, to be a settled law of nature, that all bodies have a tendency, attraction, or gravitation towards one another.

The same force, applied to two different bodies, produces always the same quantity of motion in each of them. For instance, let a boat which with its lading is one ton, be tied at a distance to another vessel, which with its lading is twenty-six tons; if the rope that ties them together be pulled, either in the less or bigger of these vessels, the less of the two, in their approach one to another, will move twenty-six feet, while the other moves but one foot.

Wherefore the quantity of matter in the earth being twenty-six times more than in the moon; the motion in the moon towards the earth, by the common force of attraction, by which they are impelled towards one another, will be twenty-six times as fast as in the earth; that is, the moon will move twenty-six miles towards the earth, for every mile the earth moves towards the moon.

Hence it is, that, in this natural tendency of bodies towards one another, that in the lesser is considered as gravitation; and that in the bigger as attraction; because the motion of the lesser body (by reason of its much greater swiftness) is alone taken notice of.

This attraction is the strongest, the nearer the attracting bodies are to each other; and, in different distances of the same bodies, is reciprocally in the duplicate proportion of those distances. For instance, if two bodies at a given distance attract each other with a certain force, at half the distance, they will attract each

other with four times that force; at one third of the distance, with nine times that force; and so on.

Two bodies at a distance will put one another into motion by the force of attraction; which is inexplicable by us, though made evident to us by experience, and so to be taken as a principle in natural philosophy.

Supposing then the earth the sole body in the universe, and at rest; if God should create the moon, at the same distance that it is now from the earth; the earth and the moon would presently begin to move one towards another in a straight line by this motion of attraction or gravitation.

If a body, that by the attraction of another would move in a straight line towards it, receives a new motion any ways oblique to the first; it will no longer move in a straight line, according to either of those directions; but in a curve that will partake of both. And this curve will differ, according to the nature and quantity of the forces that concurred to produce it; as, for instance, in many cases it will be such a curve as ends where it began, or recurs into itself; that is, makes up a circle, or an ellipsis or oval very little differing from a circle.

CHAP. II.

Of the Universe.

TO any one, who looks about him in the world, there are obvious several distinct masses of matter, separate from one another; some whereof have discernible motions. These are the sun, the fixt stars, the comets and the planets, amongst which this earth, which we inhabit, is one. All these are visible to our naked eyes.

Besides these, telescopes have discovered several fixt stars, invisible to the naked eye; and several other bodies moving about some of the planets; all which were invisible and unknown, before the use of perspective-glasses were found.

The vast distances between these great bodies, are called intermundane spaces; in which though there may be some fluid matter, yet it is so thin and subtile, and there is so little of that in respect of the great masses that move in those spaces, that it is as much as nothing.

These masses of matter are either luminous, or opake or dark.

Luminous bodies, are such as give light of themselves; and such are the sun and fixt stars.

Dark or opake bodies are such as emit no light of themselves, though they are capable of reflecting of it, when it is cast upon them from other bodies; and such are the planets.

There are some opake bodies, as for instance the comets, which, besides the light that they may have from the sun, seem to shine with a light that is nothing else but an accension, which they receive from the sun, in their near approaches to it, in their respective revolutions.

The fixt stars are called fixt, because they always keep the same distance one from another.

The sun, at the same distance from us that the fixt stars are, would have the appearance of one of the fixt stars.

CHAP. III.

Of our Solar System.

OUR solar system consists of the sun, and the planets and comets moving about it.

The planets are bodies, which appear to us like stars; not that they are luminous bodies, that is, have light in themselves; but they shine by reflecting the light of the sun.

They are called planets from a Greek word, which signifies wandering; because they change their places, and do not always keep the same distance with one another, nor with the fixt stars, as the fixt stars do.

The planets are either primary, or secondary.

There are six primary planets, viz. Mercury, Venus, the Earth, Mars, Jupiter, and Saturn.

All these move round the sun, which is, as it were, the centre of their motions.

The secondary planets move round about other planets. Besides the moon, which moves about the earth; four moons move about Jupiter, and five about Saturn, which are called their satellites.

The middle distances of the primary planets from the sun are as follows:

Mercury	Is distant from the sun's centre, about	32,000,000	Statute miles, each 5280 English and 4943 French feet.
Venus		59,000,000	
The Earth		81,000,000	
Mars		123,000,000	
Jupiter		424,000,000	
Saturn		777,000,000	

The orbits of the planets, and their respective distances from the sun, and from one another, together with the orbit of a comet, may be seen in the figure of the solar system hereunto annexed.

The periodical times of each planet's revolution about the sun are as follows:

		Y.	D.	H.	M.
Mercury	Revolves about the Sun, in the space of	0	88	0	0
Venus		0	225	0	0
The Earth		0	365	5	49
Mars		1	322	0	0
Jupiter		11	319	0	0
Saturn		29	138	0	0

The planets move round about the sun from west to east in the zodiac; or, to speak plainer, are always found amongst some of the stars of those constellations, which make the twelve signs of the zodiac.

The motion of the planets about the sun is not perfectly circular, but rather elliptical.

The reason of their motions in curve lines, is the attraction of the sun, or their gravitations towards the sun,

(call it which you please); and an oblique or side-long impulse or motion.

These two motions or tendencies, the one always endeavouring to carry them in a straight line from the circle they move in, and the other endeavouring to draw them in a straight line to the sun, makes that curve line they revolve in.

The motion of the comets about the sun is in a very long slender oval: whereof one of the focuses is the centre of the sun, and the other very much beyond the sphere of Saturn.

The moon moves about the earth, as the earth doth about the sun. So that it hath the centre of its motion in the earth; as the earth hath the centre of its revolution in the sun, about which it moves.

The moon makes its synodical motion about the earth, in 29 days, 12 hours, and about 44 minutes.

It is full moon, when, the earth being between the sun and the moon, we see all the enlightened part of the moon; new moon, when, the moon being between us and the sun, its enlightened part is turned from us; and half moon, when the moon being in the quadratures, as the astronomers call it, we see but half the enlightened part.

An eclipse of the moon is, when the earth, being between the sun and the moon, hinders the light of the sun from falling upon, and being reflected by, the moon. If the light of the sun is kept off from the whole body of the moon, it is a total eclipse; if from a part only, it is a partial one.

An eclipse of the sun is, when the moon, being between the sun and the earth, hinders the light of the sun from coming to us. If the moon hides from us the whole body of the sun, it is a total eclipse; if not, a partial one.

Our solar system is distant from the fixt stars 20,000,000,000 semi-diameters of the earth; or, as Mr. Huygens expresses the distance, in his Cosmotheoros *, the fixt stars are so remote from the earth, that,

* Christiani Huygenii ΚΟΣΜΟΘΕΩΡΟΣ, sive de terris cœlestibus earumque ornatu, conjecturæ, &c. p. m. 137.

if a cannon-bullet should come from one of the fixt stars with as swift a motion as it hath when it is shot out of the mouth of a cannon, it would be 700,000 years in coming to the earth.

This vast distance so much abates the attraction to those remote bodies, that its operation upon those of our system is not at all sensible, nor would draw away or hinder the return of any of our solar comets; though some of them should go so far from the sun, as not to make the revolution about it in less than 1000 years.

It is more suitable to the wisdom, power, and greatness of God, to think that the fixt stars are all of them suns, with systems of inhabitable planets moving about them, to whose inhabitants he displays the marks of his goodness as well as to us; rather than to imagine that those very remote bodies, so little useful to us, were made only for our sake.

CHAP. IV.

Of the Earth, considered as a Planet.

THE earth, by its revolution about the sun in 365 days, 5 hours, 49 minutes, makes that space of time we call a year.

The line, which the centre of the earth describes in its annual revolution about the sun, is called ecliptic.

The annual motion of the earth about the sun, is in the order of the signs of the zodiac; that is, speaking vulgarly, from west to east.

Besides this annual revolution of the earth about the sun in the ecliptic, the earth turns round upon its own axis in 24 hours.

The turning of the earth upon its own axis every 24 hours, whilst it moves round the sun in a year, we may conceive by the running of a bowl on a bowling-green; in which not only the centre of the bowl hath a progressive motion on the green; but the bowl in its going forward from one part of the green to another, turns round about its own axis.

The turning of the earth on its own axis, makes the difference of day and night; it being day in those parts of the earth which are turned towards the sun; and night in those parts which are in the shade, or turned from the sun.

The annual revolution of the earth in the ecliptic, is the cause of the different seasons, and of the several lengths of days and nights, in every part of the world, in the course of the year.

The reason of it, is the earth's going round its own axis in the ecliptic, but at the same time keeping every where its axis equally inclined to the plane of the ecliptic, and parallel to itself. For the plane of the ecliptic inclining to the plane of the equator, 23 degrees and an half, makes that the earth, moving round in the ecliptic, hath sometimes one of its poles, and sometimes the other nearer the sun.

If the diameter of the sun be to the diameter of the earth, as 48 to 1, as by some it is accounted; then the disk of the sun, speaking "numero rotundo," is above 2000 times bigger than the disk of the earth; and the globe of the sun is above 100,000 times bigger than the globe of the earth.

The distance of the earth's orbit from the sun, is above 200,000 semi-diameters of the earth.

If a cannon-bullet should come from the sun, with the same velocity it hath when it is shot out of the mouth of a cannon, it would be 25 years in coming to the earth.

CHAP. V.

Of the Air and Atmosphere.

WE have already considered the earth as a planet, or one of the great masses of matter moving about the sun; we shall now consider it as it is made up of its several parts, abstractedly from its diurnal and annual motions.

The exterior part of this our habitable world is the air or atmosphere; a light, thin fluid, or springy body, that encompasses the solid earth on all sides.

The height of the atmosphere, above the surface of the solid earth, is not certainly known; but that it doth reach but to a very small part of the distance betwixt the earth and the moon, may be concluded from the refraction of the rays coming from the sun, moon, and other luminous bodies.

Though considering that the air we are in, being near 1000 times lighter than water; and that the higher it is, the less it is compressed by the superior incumbent air, and so consequently being a springy body the thinner it is; and considering also that a pillar of air of any diameter is equal in weight to a pillar of quicksilver of the same diameter of between 29 and 30 inches height; we may infer that the top of the atmosphere is not very near the surface of the solid earth.

It may be concluded, that the utmost extent of the atmosphere reaches upwards, from the surface of the solid earth that we walk on, to a good distance above us; first, if we consider that a column of air of any given diameter is equiponderant to a column of quicksilver of between 29 and 30 inches height. Now quicksilver being near 14 times heavier than water, if air was as heavy as water, the atmosphere would be about 14 times higher than the column of quicksilver, i. e. about 35 feet.

Secondly, if we consider that air is 1000 times lighter than water, then a pillar of air equal in weight to a pillar of quicksilver of 30 inches high will be 35000 feet; whereby we come to know that the air or atmosphere is 35000 feet, i. e. near seven miles high.

Thirdly, if we consider that the air is a springy body, and that that, which is nearest the earth, is compressed by the weight of all the atmosphere that is above it, and rests perpendicularly upon it; we shall find that the air here, near the surface of the earth, is much denser and thicker than it is in the upper parts. For example, if upon a fleece of wool you lay another; the under one will be a little compressed by the weight of that which

lies upon it; and so both of them by a third, and so on; so that, if 10000 were piled one upon another, the under one would by the weight of all the rest be very much compressed, and all the parts of it be brought abundantly closer together, than when there was no other upon it; and the next to that a little less compressed, the third a little less than the second, and so on till it came to the uppermost, which would be in its full expansion, and not compressed at all. Just so it is in the air; the higher you go in it, the less it is compressed, and consequently the less dense it is; and so the upper part being exceedingly thinner than the lower part, which we breathe in (which is that that is 1000 times lighter than water); the top of the atmosphere is probably much higher than the distance above assigned.

That the air near the surface of the earth will mightily expand itself, when the pressure of the incumbent atmosphere is taken off, may be abundantly seen in the experiments made by Mr. Boyle in his pneumatic engine. In his "Physico-mechanical Experiments," concerning the air, he declares* it probable that the atmosphere may be several hundred miles high; which is easy to be admitted, when we consider what he proves in another part of the same treatise, viz. that the air here about the surface of the earth, when the pressure is taken from it, will dilate itself about 152 times.

The atmosphere is the scene of the meteors; and therein is collected the matter of rain, hail, snow, thunder, and lightning; and a great many other things observable in the air.

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* New Experiments Physico-mechanical, touching the spring of the air, and its effects; (made for the most part in a new pneumatical engine) written..... by the honourable ROBERT BOYLE, Esq; experiment xxxvi. p. 155. Oxford, 1662, in 4to.

CHAP. VI.

Of Meteors in general.

BESIDES the springy particles of pure air, the atmosphere is made up of several steams or minute particles of several sorts, rising from the earth and the waters, and floating in the air, which is a fluid body, and though much finer and thinner, may be considered in respect of its fluidity to be like water, and so capable, like other liquors, of having heterogeneous particles floating in it.

The most remarkable of them are, first, the particles of water raised into the atmosphere, chiefly by the heat of the sun, out of the sea and other waters, and the surface of the earth; from whence it falls in dew, rain, hail, and snow.

Out of the vapours rising from moisture, the clouds are principally made.

Clouds do not consist wholly of watery parts; for, besides the aqueous vapours that are raised into the air, there are also sulphureous and saline particles that are raised up, and in the clouds mixed with the aqueous particles, the effects whereof are sometimes very sensible; as particularly in lightning and thunder, when the sulphureous and nitrous particles firing break out with that violence of light and noise, which is observable in thunder, and very much resembles gunpowder.

That there are nitrous particles raised into the air is evident from the nourishment which rain gives to vegetables more than any other water; and also by the collection of nitre or salt-petre in heaps of earth, out of which it has been extracted, if they be exposed to the air, so as to be kept from rain; not to mention other efforts, wherein the nitrous spirit in the air shows itself.

Clouds are the greatest and most considerable of all the meteors, as furnishing matter and plenty to the earth. They consist of very small drops of water, and are elevated a good distance above the surface of the

earth; for a cloud is nothing but a mist flying high in the air, as a mist is nothing but a cloud here below.

How vapours are raised into the air in invisible steams by the heat of the sun out of the sea, and moist parts of the earth, is easily understood; and there is a visible instance of it in ordinary distillations. But how these steams are collected into drops, which bring back the water again, is not so easy to determine.

To those that will carefully observe, perhaps it will appear probable, that it is by that, which the chymists call precipitation; to which it answers in all its parts.

The air may be looked on as a clear and pellucid menstruum, in which the insensible particles of dissolved matter float up and down, without being discerned, or troubling the pellucidity of the air; when on a sudden, as if it were by a precipitation, they gather into the very small but visible misty drops that make clouds.

This may be observed sometimes in a very clear sky; when, there not appearing any cloud, or any thing opake, in the whole horizon, one may see on a sudden clouds gather, and all the hemisphere overcast; which cannot be from the rising of the new aqueous vapours at that time, but from the precipitation of the moisture, that in invisible particles floated in the air, into very small, but very visible drops, which by a like cause being united into greater drops, they become too heavy to be sustained in the air, and so fall down in rain.

Hail seems to be the drops of rain frozen in their falling.

Snow is the small particles of water frozen before they unite into drops.

The regular figures, which branch out in flakes of snow, seem to show that there are some particles of salt mixed with the water, which makes them unite in certain angles.

The rainbow is reckoned one of the most remarkable meteors, though really it be no meteor at all; but the reflection of the sun-beams from the smallest drops of a cloud or mist, which are placed in a certain angle made by the concurrence of two lines, one drawn from the sun, and the other from the eye to these little drops in

the cloud, which reflect the sun-beams; so that two people, looking upon a rainbow at the same time, do not see exactly the same rainbow.

CHAP. VII.

Of Springs, Rivers, and the Sea.

PART of the water that falls down from the clouds, runs away upon the surface of the earth into channels, which convey it to the sea; and part of it is imbibed in the spungy shell of the earth, from whence sinking lower by degrees, it falls down into subterranean channels, and so under ground passes into the sea; or else, meeting with beds of rock or clay, it is hindered from sinking lower, and so breaks out in springs, which are most commonly in the sides, or at the bottom of hilly ground.

Springs make little rivulets; those united make brooks; and those coming together make rivers, which empty themselves into the sea.

The sea is a great collection of waters in the deep valleys of the earth. If the earth were all plain, and had not those deep hollows, the earth would be all covered with water; because the water being lighter than the earth, would be above the earth, as the air is above the water.

The most remarkable thing in the sea is that motion of the water called tides. It is a rising and falling of the water of the sea. The cause of this is the attraction of the moon, whereby the part of the water in the great ocean, which is nearest the moon, being most strongly attracted, is raised higher than the rest; and the part opposite to it on the contrary side, being least attracted, is also higher than the rest. And these two opposite rises of the surface of the water in the great ocean, following the motion of the moon from east to west, and striking against the large coasts of the continents that lie in its way; from thence rebounds back again, and so makes floods and ebbs in narrow seas, and rivers

remote from the great ocean. Herein we also see the reason of the times of the tides, and why they so constantly follow the course of the moon.

CHAP. VIII.

Of several Sorts of Earth, Stones, Metals, Minerals, and other Fossils.

THIS solid globe we live upon is called the earth, though it contains in it a great variety of bodies, several whereof are not properly earth; which word, taken in a more limited sense, signifies such parts of this globe as are capable, being exposed to the air, to give rooting and nourishment to plants, so that they may stand and grow in it. With such earth as this, the greatest part of the surface of this globe is covered; and it is as it were the store-house, from whence all the living creatures of our world have originally their provisions; for from thence all the plants have their sustenance, and some few animals, and from these all the other animals.

Of earth, taken in this sense, there are several sorts, v. g. common mould, or garden earth, clay of several kinds, sandy soils.

Besides these, there is medicinal earth; as that which is called terra lemnia, bolus armena, and divers others.

After the several earths, we may consider the parts of the surface of this globe, which is barren; and such, for the most, are sand, gravel, chalk, and rocks, which produce nothing, where they have no earth mixt amongst them. Barren sands are of divers kinds, and consist of several little irregular stones without any earth; and of such there are great deserts to be seen in several parts of the world.

Besides these, which are most remarkable on the surface of the earth, there are found deeper, in this globe, many other bodies, which, because we discover by digging into the bowels of the earth, are called by one common name, fossils; under which are comprehended

metals, minerals or half metals, stones of divers kinds, and sundry bodies that have the texture between earth and stone.

To begin with those fossils which come nearest the earth; under this head we may reckon the several sorts of oker, chalk, that which they call black-lead, and other bodies of this kind, which are harder than earth, but have not the consistency and hardness of a perfect stone.

Next to these may be considered stones of all sorts; whereof there is almost an infinite variety. Some of the most remarkable, either for beauty or use, are these: marble of all kinds, porphyry, granate, free-stone, &c. flints, agates, cornelians, pebbles, under which kind come the precious stones, which are but pebbles of an excessive hardness, and when they are cut and polished, they have an extraordinary lustre. The most noted and esteemed are, diamonds, rubies, amethysts, emeralds, topazes, opals.

Besides these, we must not omit those which, though of not so much beauty, yet are of greater use, viz. loadstones, whetstones of all kinds, limestones, callamine, or lapis calaminaris; and abundance of others.

Besides these, there are found in the earth several sorts of salts, as eating or common salt, vitriol, sal gemma, and others.

The minerals, or semi-metals, that are dug out of the bowels of the earth, are antimony, cinnabar, zink, &c. to which may be added brimstone.

But the bodies of most use, that are sought for out of the depths of the earth, are the metals; which are distinguished from other bodies by their weight, fusibility, and malleableness; of which there are these sorts, gold, silver, copper, tin, lead, and, the most valuable of them all, iron; to which one may join that anomalous body quicksilver, or mercury.

He that desires to be more particularly informed concerning the qualities and properties of these subterraneous bodies, may consult natural historians and chymists.

What lies deeper towards the centre of the earth we know not, but a very little beneath the surface of this

globe, and whatever we fetch from under ground, is only what is lodged in the shell of the earth.

All stones, metals, and minerals, are real vegetables; that is, grow organically from proper seeds, as well as plants.

CHAP. IX.

Of Vegetables, or Plants.

NEXT to the earth itself, we may consider those that are maintained on its surface; which, though they are fastened to it, yet are very distinct from it; and those are the whole tribe of vegetables or plants. These may be divided into three sorts, herbs, shrubs, and trees.

Herbs are those plants whose stalks are soft, and have nothing woody in them, as grass, sowthistle, and hemlock. Shrubs and trees have all wood in them; but with this difference, that shrubs grow not to the height of trees, and usually spread into branches near the surface of the earth, whereas trees generally shoot up in one great stem or body, and then, at a good distance from the earth, spread into branches; thus gooseberries, and currants, are shrubs; oaks, and cherries, are trees.

In plants, the most considerable parts are these, the root, the stalk, the leaves, the flower, and the seed. There are very few of them that have not all these parts, though some there are that have no stalk; others that have no leaves; and others that have no flowers. But without seed or root I think there are none.

In vegetables, there are two things chiefly to be considered, their nourishment and propagation.

Their nourishment is thus: the small and tender fibres of the roots, being spread under ground, imbibe, from the moist earth, juice fit for their nourishment; this is conveyed by the stalk up into the branches, and leaves, through little, and, in some plants, imperceptible tubes, and from thence, by the dark, returns again to the root; so that there is in vegetables, as well as animals, a circulation of the vital liquor. By what

impulse it is moved, is somewhat hard to discover. It seems to be from the difference of day and night, and other changes in the heat of the air; for the heat dilating, and the cold contracting those little tubes, supposing there be valves in them, it is easy to be conceived how the circulation is performed in plants, where it is not required to be so rapid and quick as in animals.

Nature has provided for the propagation of the species of plants several ways. The first and general is by seed. Besides this, some plants are raised from any part of the root set in the ground; others by new roots that are propagated from the old one, as in tulips; others by offsets; and in others, the branches set in the ground will take root and grow; and last of all, grafting and inoculation, in certain sorts, are known ways of propagation. All these ways of increasing plants make one good part of the skill of gardening; and from the books of gardeners may be best learnt.

CHAP. X.

Of Animals.

THERE is another sort of creatures belonging to this our earth, rather as inhabitants than parts of it. They differ in this from plants, that they are not fixed to any one place, but have a freedom of motion up and down, and, besides, have sense to guide them in their motions.

Man and brute, divide all the animals of this our globe.

Brutes may be considered as either aerial, terrestrial, aquatic, or amphibious. I call those aerial, which have wings, wherewith they can support themselves in the air. Terrestrial, are those, whose only place of rest is upon the earth. Aquatic, are those, whose constant abode is upon the water. Those are called amphibious, which live freely in the air upon the earth, and yet are observed to live long upon the water, as if they were natural inhabitants of that element; though it be worth

the examination to know, whether any of those creatures that live at their ease, and by choice, a good while or at any time upon the earth, can live a long time together perfectly under water.

Aerial animals may be subdivided into birds, and flies.

Fishes, which are the chief part of aquatic animals, may be divided into shell-fishes, scaly fishes, and those that have neither apparent scales nor shells.

And the terrestrial animals may be divided into quadrupeds or beasts, reptiles, which have many feet, and serpents, which have no feet at all.

Insects, which in their several changes belong to several of the before-mentioned divisions, may be considered together as one great tribe of animals. They are called insects, from a separation in the middle of their bodies, whereby they are, as it were, cut into two parts, which are joined together by a small ligature; as we see in wasps, common flies, and the like.

Besides all these, there are some animals that are not perfectly of these kinds, but placed, as it were, in the middle betwixt two of them, by something of both; as bats, which have something of beasts and birds in them.

Some reptiles of the earth, and some of aquatics, want one or more of the senses, which are in perfecter animals; as worms, oysters, cockles, &c.

Animals are nourished by food, taken in at the mouth, digested in the stomach, and thence by fit vessels distributed over the whole body, as is described in books of anatomy.

The greatest part of animals have five senses, viz. seeing, hearing, smelling, tasting, and feeling. These, and the way of nourishment of animals, we shall more particularly consider; because they are common to man with beasts.

The way of nourishment of animals, particularly of man, is by food taken in at the mouth, which being chewed there, is broken and mixed with the saliva, and thereby prepared for an easier and better digestion in the stomach.

When the stomach has performed its office upon the food, it protrudes it into the guts, by whose peristaltic

motion it is gently conveyed along through the guts, and, as it passes, the chyle, which is the nutritive part, is separated from the excrementitious, by the lacteal veins; and from thence conveyed into the blood, with which it circulates till itself be concocted into blood. The blood, being by the vena cava brought into the right ventricle of the heart, by the contraction of that muscle, is driven through the arteria pulmonaris into the lungs; where the constantly inspired air mixing with it, enlivens it; and from thence being conveyed by the vena pulmonaris into the left ventricle of the heart, the contraction of the heart forces it out, and, by the arteries, distributes it into all parts of the body; from whence it returns by the veins into the right ventricle of the heart, to take the same course again. This is called the circulation of the blood; by which life and heat are communicated to every part of the body.

In the circulation of the blood, a good part of it goes up into the head; and by the brains are separated from it, or made out of it, the animal spirits; which, by the nerves, impart sense and motion to all parts of the body.

The instruments of motion are the muscles; the fibres whereof contracting themselves, move the several parts of the body.

This contraction of the muscles is, in some of them, by the direction of the mind, and in some of them without it; which is the difference between voluntary and involuntary motions, in the body.

CHAP. XI.

Of the Five Senses.

OF SEEING.

THE organ of seeing is the eye; consisting of variety of parts wonderfully contrived, for the admitting and refracting the rays of light; so that those that come from the same point of the object, and fall upon different parts of the pupil, are brought to meet

again at the bottom of the eye, whereby the whole object is painted on the retina that is spread there."

That which immediately affects the sight, and produces in us that sensation which we call seeing, is light.

Light may be considered either, first, as it radiates from luminous bodies directly to our eyes; and thus we see luminous bodies themselves, as the sun, or a flame, &c. or secondly, as it is reflected from other bodies; and thus we see a man, or a picture, by the rays of light reflected from them to our eyes.

Bodies, in respect of light, may be divided into three sorts; first, those that emit rays of light, as the sun and fixt stars; secondly, those that transmit the rays of light, as the air; thirdly, those that reflect the rays of light, as iron, earth, &c. The first are called luminous; the second pellucid; and the third opake.

The rays of light themselves are not seen; but by them the bodies, from which they originally come; as the sun, or a fixt star; or the bodies, from which they are reflected; as a horse, or a tulip. When the moon shines, we do not see the rays which come from the sun to the moon, but by them we see the moon, from whence they are reflected.

If the eye be placed in the medium, through which the rays pass to it, the medium is not seen at all; for instance, we do not see the air through which the rays come to our eyes. But if a pellucid body, through which the light comes, be at a distance from our eye, we see that body, as well as the bodies, from whence the rays come that pass through them to come to our eyes. For instance, we do not only see bodies through a pair of spectacles, but we see the glass itself. The reason whereof is, that pellucid bodies being bodies, the surfaces of which reflect some rays of light from their solid parts; these surfaces, placed at a convenient distance from the eye, may be seen by those reflected rays; as, at the same time, other bodies beyond those pellucid ones may be seen by the transmitted rays.

Opake bodies are of two sorts, specular, or not specular. Specular bodies, or mirrours, are such opake bodies, whose surfaces are polished; whereby they, reflect-

ing the rays in the same order as they come from other bodies, show us their images.

The rays that are reflected from opake bodies, always bring with them to the eye the idea of colour; and this colour is nothing else, in the bodies, but a disposition to reflect to the eye more copiously one sort of rays than another. For particular rays are originally endowed with particular colours; some are red, others blue, others yellow, and others green, &c.

Every ray of light, as it comes from the sun, seems a bundle of all these several sorts of rays; and as some of them are more refrangible than others; that is, are more turned out of their course, in passing from one medium to another; it follows, that after such refraction they will be separated, and their distinct colour observed. Of these, the most refrangible are violet, and the least red; and the intermediate ones, in order, are indigo, blue, green, yellow, and orange. This separation is very entertaining, and will be observed with pleasure in holding a prism in the beams of the sun.

As all these rays differ in refrangibility, so they do in reflexibility; that is, in the property of being more easily reflected from certain bodies, than from others; and hence arise, as hath been said, all the colours of bodies; which are, in a manner, infinite, as an infinite number of compositions and proportions, of the original colours, may be imagined.

The whiteness of the sun's light is compounded of all the original colours, mixed in a due proportion.

Whiteness, in bodies, is but a disposition to reflect all colours of light, nearly in the proportion they are mixed in the original rays; as, on the contrary, blackness is only a disposition to absorb or stifle, without reflection, most of the rays of every sort that fall on the bodies.

Light is successively propagated with an almost inconceivable swiftness; for it comes from the sun, to this our earth, in about seven or eight minutes of time, which distance is about 80,000,000 English miles.

Besides colour, we are supposed to see figure, but, in truth, that which we perceive when we see figure, as perceivable by sight, is nothing but the termination of colour.

OF HEARING.

NEXT to seeing, hearing is the most extensive of our senses. The ear is the organ of hearing, whose curious structure is to be learnt from anatomy.

That which is conveyed into the brain by the ear is called sound; though, in truth, till it come to reach and affect the perceptive part, it be nothing but motion.

The motion, which produces in us the perception of sound, is a vibration of the air, caused by an exceeding short, but quick, tremulous motion of the body, from which it is propagated; and therefore we consider and denominate them as bodies sounding.

That sound is the effect of such a short, brisk, vibrating motion of bodies, from which it is propagated, may be known from what is observed and felt in the strings of instruments, and the trembling of bells, as long as we perceive any sound come from them; for as soon as that vibration is stopt, or ceases in them, the perception ceases also.

The propagation of sound is very quick, but not approaching that of light. Sounds move about 1140 English feet in a second of time; and in seven or eight minutes of time, they move about one hundred English miles.

OF SMELLING.

SMELLING is another sense, that seems to be wrought on by bodies at a distance; though that which immediately affects the organ, and produces in us the sensation of any smell, are effluvia, or invisible particles, that coming from bodies at a distance, immediately affect the olfactory nerves.

Smelling bodies seem perpetually to send forth effluvia, or steams, without sensibly wasting at all. Thus a grain of musk will send forth odoriferous particles for scores of years together, without its being spent; whereby one would conclude that these particles are very small;

and yet it is plain, that they are much grosser than the rays of light, which have a free passage through glass; and grosser also than the magnetic effluvia, which pass freely through all bodies, when those that produce smell will not pass through the thin membranes of a bladder, and many of them scarce ordinary white paper.

There is a great variety of smells, though we have but a few names for them; sweet, stinking, sour, rank, and musty, are almost all the denominations we have for odours; though the smell of a violet, and of musk, both called sweet, are as distinct as any two smells whatsoever.

OF TASTE.

Taste is the next sense to be considered.

The organ of taste is the tongue and palate.

Bodies that emit light, sounds, and smells, are seen, heard, and smelt at a distance; but bodies are not tasted, but by immediate application to the organ; for till our meat touch our tongues, or palates, we taste it not, how near soever it be.

It may be observed of tastes, that though there be a great variety of them, yet, as in smells, they have only some few general names; as sweet, bitter, sour, harsh, rank, and some few others.

OF TOUCH.

The fifth and last of our senses is touch; a sense spread over the whole body, though it be most eminently placed in the ends of the fingers.

By this sense the tangible qualities of bodies are discerned; as hard, soft, smooth, rough, dry, wet, clammy, and the like.

But the most considerable of the qualities, that are perceived by this sense, are heat and cold.

The due temperament of those two opposite qualities, is the great instrument of nature, that she makes use of in most, if not all, her productions.

Heat is a very brisk agitation of the insensible parts of the object, which produces in us that sensation, from whence we denominate the object hot; so what in our sensation is heat, in the object is nothing but motion. This appears by the way whereby heat is produced; for we see that the rubbing of a brass nail upon a board will make it very hot, and the axle-trees of carts and coaches are often hot, and sometimes to a degree, that it sets them on fire, by the rubbing of the nave of the wheel upon it.

On the other side, the utmost degree of cold is the cessation of that motion of the insensible particles, which to our touch is heat.

Bodies are denominated hot and cold in proportion to the present temperament of that part of our body to which they are applied; so that feels hot to one, which seems cold to another; nay, the same body, felt by the two hands of the same man, may at the same time appear hot to the one, and cold to the other; because the motion of the insensible particles of it may be more brisk than that of the particles of the other.

Besides the objects before-mentioned, which are peculiar to each of our senses, as light, and colour of the sight; sound of hearing; odours of smelling; savours of tasting; and tangible qualities of the touch; there are two others that are common to all the senses; and those are pleasure and pain, which they may receive by and with their peculiar objects. Thus, too much light offends the eye; some sounds delight, and others grate the ear; heat in a certain degree is very pleasant, which may be augmented to the greatest torment; and so the rest.

These five senses are common to beasts with men; nay, in some of them, some brutes exceed mankind. But men are endowed with other faculties, which far excel any thing that is to be found in the other animals in this our globe.

Memory also brutes may be supposed to have, as well as men.

CHAP. XII.

Of the Understanding of Man.

THE understanding of man does so surpass that of brutes, that some are of opinion brutes are mere machines, without any manner of perception at all. But letting this opinion alone, as ill-grounded, we will proceed to the consideration of human understanding, and the distinct operations thereof.

The lowest degree of it consists in perception, which we have before in part taken notice of, in our discourse of the senses. Concerning which it may be convenient farther to observe, that, to conceive a right notion of perception, we must consider the distinct objects of it, which are simple ideas; v. g. such as are those signified by these words, scarlet, blue, sweet, bitter, heat, cold, &c. from the other objects of our senses; to which we may add the internal operations of our minds, as the objects of our own reflection, such as are thinking, willing, &c.

Out of these simple ideas are made, by putting them together, several compounded or complex ideas; as those signified by the words pebble, marygold, horse.

The next thing the understanding doth in its progress to knowledge, is to abstract its ideas, by which abstraction they are made general.

A general idea is an idea in the mind, considered there as separated from time and place; and so capable to represent any particular being that is conformable to it. Knowledge, which is the highest degree of the speculative faculties, consists in the perception of the truth of affirmative, or negative, propositions.

This perception is either immediate, or mediate. Immediate perception of the agreement, or disagreement, of two ideas, is when, by comparing them together in our minds, we see, or, as it were, behold, their agreement, or disagreement. This therefore is called intuitive knowledge. Thus we see that red is not green;

that the whole is bigger than a part; and that two and two are equal to four.

The truth of these, and the like propositions, we know by a bare simple intuition of the ideas themselves, without any more ado; and such propositions are called self-evident.

The mediate perception of the agreement, or disagreement, of two ideas, is when, by the intervention of one or more other ideas, their agreement, or disagreement, is shown. This is called demonstration, or rational knowledge. For instance: The inequality of the breadth of two windows, or two rivers, or any two bodies that cannot be put together, may be known by the intervention of the same measure, applied to them both; and so it is in our general ideas, whose agreement or disagreement may be often shown by the intervention of some other ideas, so as to produce demonstrative knowledge; where the ideas in question cannot be brought together, and immediately compared, so as to produce intuitive knowledge.

The understanding doth not know only certain truth; but also judges of probability, which consists in the likely agreement, or disagreement, of ideas.

The assenting to any proposition as probable is called opinion or belief.

We have hitherto considered the great and visible parts of the universe, and those great masses of matter, the stars, planets, and particularly this our earth, together with the inanimate parts, and animate inhabitants of it; it may be now fit to consider what these sensible bodies are made of, and that is of unconceivably small bodies, or atoms, out of whose various combinations bigger moleculæ are made: and so, by a greater and greater composition, bigger bodies; and out of these the whole material world is constituted.

By the figure, bulk, texture, and motion, of these small and insensible corpuscles, all the phænomena of bodies may be explained.

A NEW

METHOD

OF A

COMMON-PLACE-BOOK.

TRANSLATED OUT OF THE FRENCH FROM THE SECOND VOLUME OF THE BIBLIOTHEQUE UNIVERSELLE.

A	a	F	a
	e 4.		e
	i		i
	o		o
	u		u
B	a	G	a
	e		e
	i		i
	o		o
	u		u
C	a	H	a 12. 16.
	e		e
	i		i
	o 14.		o
	u		u
D	a	I	a
	e		e
	i		i
	o		o
	u		u
E	a	L	a
	e		e
	i 2. 10.		i
	o		o
	u		u

M	a	S	a
	e		e
	i		i
	o		o
	u		u
N	a	T	a
	e		e
	i		i
	o		o
	u		u
O	a	U	a
	e		e
	i		i
	o		o
	u		u
P	a	X	a
	e		e
	i		i
	o		o
	u		u
R	a	Z	a
	e		e
	i		i
	o		o
	u	Q	u

EPISTOLA.] A letter from Mr. Locke to Mr. 2. Toignard, containing a new and easy method of a common-place-book, to which an index of two pages is sufficient.

AT length, sir, in obedience to you, I publish my "method of a common-place-book." I am ashamed that I deferred so long complying with your request; but I esteemed it so mean a thing, as not to deserve publishing, in an age so full of useful inventions, as ours is. You may remember, that I freely communicated it to you, and several others, to whom I imagined it would not be unacceptable: so that it was not to reserve the sole use of it to myself, that I declined publishing it. But the regard I had to the public discouraged me from presenting it with such a trifle. Yet my obligations to you, and the friendship between us, compel me now to follow your advice. Your last letter has perfectly determined me to it, and I am convinced that I ought not to delay publishing it, when you tell me, that an experience of several years has showed its usefulness, and several of your friends, to whom you have communicated it. There is no need I should tell you, how useful it has been to me, after five and twenty years experience, as I told you, eight years since, when I had the honour to wait on you at Paris, and when I might have been instructed by your learned and agreeable discourse. What I aim at now, by this letter, is to testify publicly the esteem and respect I have for you, and to convince you how much I am, sir, your, &c.

Before I enter on my subject, it is fit to acquaint the reader, that this tract is disposed in the same manner that the common-place-book

3. ought to be disposed. It will be understood by reading what follows, what is the meaning of the Latin titles on the top of the backside of each leaf, and at the bottom [a little below the top] of this page.

EBIONITÆ.] In eorum evangelio, quod secundum Hebræos dicebatur, historia quæ habetur Matth. xix. 16. et alia quædam, erat interpolata in hunc modum: "Dixit ad eum alter divitum, magister, "quid bonum faciens vivam? Dixit ei Domi- "nus, legem & prophetas, fac. Respondit ad "eum, feci. Dixit ei: vade, vende omnia quæ "possides, & divide pauperibus, & veni, se- "quere me. Cœpit autem dives scalpere caput "suum, & non placuit ei. Et dixit ad eum "Dominus: quomodo dicis, legem feci & pro- "phetas? cùm scriptum sit in lege, diliges "proximum tuum sicut teipsum: & ecce multi "fratres tui filii Abrahæ amicti sunt stercore, "morientes præ fame, & domus tua plena est "bonis multis, & non egreditur omnino aliquid "ex eâ ad eos. Et conversus, dixit Simoni, dis- "cipulo suo, sedenti apud se: Simon, fili Johan- "næ, facilius est camelum intrare per foramen "acûs, quam divitem in regnum cœlorum." Nimirum hæc ideo immutavit Ebion, quia Christum nec Dei filium, nec νομοθέτην, sed nudum interpretem legis per Mosem datæ agnoscebat.

In the Gospel of the Ebionites, which they called the Gospel according to the Hebrews, the story, that is in the xixth of St. Matth. and in the 16th and following verses, was changed after this manner: "One of the rich men said to him: "Master, what shall I do that I may have life? "Jesus said to him: Obey the law and the pro- "phets. He answered, I have done so. Jesus "said unto him, Go, sell what thou hast, divide "it among the poor, and then come and follow "me. Upon which the rich man began to "scratch his head, and to dislike the advice of "Jesus: and the Lord said unto him, How can "you say you have done as the law and the pro-

ADVERSARIORUM METHODUS.] I take a paper book
4. of what size I please. I divide the two first pages that face one another by parallel lines into five and twenty equal parts, every fifth line black, the other red. I then cut them perpendicularly by other lines that I draw from the top to the bottom of the page, as you may see in the table prefixed. I put about the middle of each five spaces one of the twenty letters I design to make use of, and, a little forward in each space, the five vowels, one below another, in their natural order. This is the index to the whole volume, how big soever it may be.

The index being made after this manner, I leave a margin in all the other pages of the book, of about the largeness of an inch, in a volume, in folio, or a little larger; and, in a less volume, smaller in proportion.

If I would put any thing in my Common-Place-Book, I find out a head to which I may refer it. Each head ought to be some important and essential word to the matter in hand, and in that word regard is to be had to the first letter, and the vowel that follows it; for upon these two letters depends all the use of the index.

I omit three letters of the alphabet as of no use to me, viz. K. Y. W. which are supplied by C. I. U. that are equivalent to them. I put the letter Q. that is always followed with an u. in the fifth space of Z. By throwing Q. last in my index, I preserve the regularity of my index, and diminish not in the least its extent; for it seldom happens that there is any head begins with *Z.* u. I have found none in the five and twenty years I have used this method. If nevertheless it be necessary, nothing hinders but that one may make a reference after Q. u. provided it be done with any kind of distinction; but for more exactness a place may be assigned

5. For Q. u. below the index, as I have formerly done. When I meet with any thing, that I think fit to put into my common-place-book, I first find a proper head. Suppose, for example, that the head be EPISTOLA, I look into the index for the first letter and the following vowel, which in this instance are E. i. if in the space marked E. i. there is any number that directs me to the page designed for words that begin with an E. and whose first vowel, after the initial letter, is I; I must then write under the word Epistola, in that page, what I have to remark. I write the head in large letters, and begin a little way out into the margin, and I continue on the line, in writing what I have to say. I observe constantly this rule, that only the head appears in the margin, and that it be continued on without ever doubling the line in the margin, by which means the heads will be obvious at first sight.

If I find no number in the index, in the space E. i. I look into my book for the first backside of a leaf that is not written in, which, in a book where there is yet nothing but the index, must be p. 2. I write then, in my index after E. i. the number 2. and the head Epistola at the top of the margin of the second page, and all that I put under that head, in the same page, as you see I have done in the second page of this method. From that time the class E. i. is wholly in possession of the second and third pages.

They are to be employed only on words that begin with an E, and whose nearest vowel is an I, as Ebionitæ (see the third page) Episcopus, Echinus, Edictum, Efficacia, &c. The reason, why I begin always at the top of the backside of a leaf, and assign to one class two pages, that face one another, rather than an entire leaf, is, because the heads of the class appear

ADVERSARIORUM METHODUS.] all at once, without the
V. trouble of turning over a leaf.
6.

Every time that I would write a new head, I look first in my index for the characteristic letters of the words, and I see, by the number that follows, what the page is that is assigned to the class of that head. If there is no number, I must look for the first backside of a page that is blank. I then set down the number in the index, and design that page, with that of the right side of the following leaf, to this new class. Let it be, for example, the word Adversaria; if I see no number in the space A. e. I seek for the first backside of a leaf, which being at p. 4. I set down in the space A. e. the number 4. and in the fourth page the head ADVERSARIA, with all that I write under it, as I have already informed you. From this time the fourth page with the fifth that follows is reserved for the class A. e. that is to say, for the heads that begin with an A, and whose next vowel is an E; as for instance, Aer, Aera, Agesilaus, Acheron, &c.

When the two pages designed for one class are full, I look forwards for the next backside of a leaf, that is blank. If it be that which immediately follows, I write, at the bottom of the margin, in the page that I have filled, the letter V, that is to say, Verte, turn over; as likewise the same at the top of the next page. If the pages, that immediately follow, are already filled by other classes, I write at the bottom of the page last filled, V, and the number of the next empty backside of a page. At the beginning of that page I write down the head, under which I go on, with what I had to put in my common-place-book, as if it had been in the same page. At the top of this new backside of a leaf, I set down the number of the page I filled last. By these numbers which refer to one another, the first whereof is at the bottom of one page, and

7. the second is at the beginning of another, one joins matter that is separated, as if there was nothing between them. For, by this reciprocal reference of numbers, one may turn, as one leaf, all those that are between the two, even as if they were pasted together. You have an example of this in the third and tenth pages.

Every time I put a number at the bottom o a page, I put it also into the index; but when I put only a V, I make no addition in the index; the reason whereof is plain.

If the head is a monosyllable and begins with a vowel, that vowel is at the same time both the first letter of the word, and the characteristic vowel. Therefore I write the words Ars in A a and Os in O o.

You may see by what I have said, that one is to begin to write each class of words, on the backside of a page. It may happen, upon that account, that the backside of all the pages may be full, and yet there may remain several pages, on the right hand, which are empty. Now if you have a mind to fill your book, you may assign these right sides, which are wholly blank, to new classes.

If any one imagines that these hundred classes are not sufficient to comprehend all sorts of subjects without confusion, he may follow the same method, and yet augment the number to five hundred, in adding a vowel. But having experienced both the one and the other method, I prefer the first; and usage will convince those, who shall try it, how well it will serve the purpose aimed at; especially if one has a book for each science, upon which one makes collections, or at least two for the two heads, to which one may refer all our knowledge, viz. moral philosophy, and natural.

You may add a third, which may be called the knowledge of signs, which relates to the use

ADVERSARIORUM METHODUS.] of words, and is of much
V. more extent than mere criticism.
8.

As to the language, in which one ought to express the heads, I esteem the Latin tongue most commodious, provided the nominative case be always kept to, for fear lest in words of two syllables, or in monosyllables that begin with the vowel, the change, which happens in oblique cases, should occasion confusion. But it is not of much consequence what language is made use of, provided there be no mixture in the heads, of different languages.

To take notice of a place in an author, from whom I quote something, I make use of this method: before I write any thing, I put the name of the author in my common-place-book, and under that name the title of the treatise, the size of the volume, the time and place of its edition, and (what ought never to be omitted) the number of pages that the whole book contains. For example, I put into the class M. a. "Mar-" shami Canon Chronicus Ægyptiacus, Græcus, " & disquisitiones fol." London 1672, p. 626. This number of pages serves me for the future to mark the particular treatise of this author, and the edition I make use of. I have no need to mark the place, otherwise than in setting down the number of the page from whence I have drawn what I have wrote, just above the number of pages contained in the whole volume. You will see an example in Acherusia, where the number 259 is just above the number 626, that is to say, the number of the page, where I take my matter, is just above the number of pages of the whole volume. By this means I not only save myself the trouble of writing Canon Chronicus Ægyptiacus, &c. but am able by the rule of three to find out the same passage in any other edition, by looking for the number of its pages;

9. since the edition I have used, which contains 626, gives me 259. You will not indeed always light on the very page you want, because of the breaches, that are made in different editions of books, and that are not always equal in proportion; but you are never very far from the place you want, and it is better to be able to find a passage, in turning over a few pages, than to be obliged to turn over a whole book to find it, as it happens, when the book has no index, or when the index is not exact.

ACHERON.] "Pratum, ficta, mortuorum habitatio, est "locus prope Memphin, juxta paludem, quam "vocant Acherusiam, &c." This is a passage out of D. Siculus, the sense whereof is this: the fields, where they feign that the dead inhabit, are only a place near Memphis, near a marsh called Acherusia, about which is a most delightful country, where one may behold lakes and forests of lotus and calamus. It is with reason, that Orpheus said, the dead inhabit these places, because there the Egyptians celebrate the greatest part, and the most august, of their funeral solemnities. They carry the dead over the Nile, and through the marsh of Acherusia, and there put them into subterraneous vaults. There are a great many other fables, among the Greeks, touching the state of the dead, which very well agree with what is at this day practised in Egypt. For they call the boat, in which the dead are transported, Baris; and a certain piece of money is given to the ferry-man for a passage, who, in their language, is called Charon. Near this place is a temple of Hecate in the shades, &c. and the gates of Cocytus and Lethe, shut up with bars of brass. There are other gates, which are called the gates of truth, with the statue of justice, before them, which had no head. Marsham. $\frac{259}{626}$.

EBIONITÆ.] " phets direct you? since it is written in the
V. 3. " law, Thou shalt love thy neighbour as thyself;
10. " and there are many of thy brethren, children
" of Abraham, who are almost naked, and who
" are ready to die with hunger, while thy house
" is full of good things, and yet thou givest
" them no help nor assistance. And turning
" himself towards Simon, his disciple, who sat
" near him; Simon, son of Johanna, said he,
" it is easier for a camel to go through the eye
" of a needle, than for a rich man to enter into
" the kingdom of heaven." Ebion changed this passage, because he did not believe Jesus Christ to be the son of God, nor a law-giver, but a mere interpreter of the law of Moses. Grotius $\frac{333}{1060}$.

HÆRETICI.] " Nostrum igitur fuit, eligere & optare
12. " meliora, ut ad vestram correctionem auditum
" haberemus, non in contentione & æmulatione
" & persecutionibus, sed mansuetè consolando,
" benevolè hortando, lenitur disputando, sicut
" scriptum est, servum autem Domini non opor-
" tet litigare, sed mitem esse ad omnes, docibi-
" lem, patientem, in modestia corripientem di-
" versa sentientes. Nostrum ergo fuit velle has
" partes expetere; Dei est volentibus & peten-
" tibus donare quod bonum est. Illi in vos
" sæviant qui nesciunt cum quo labore verum
" inveniatur, & quam difficile caveantur errores.
" Illi in vos sæviant, qui nesciunt quam rarum
" & arduum sit carnalia phantasmata piæ mentis
" serenitate superare. Ille in vos sæviant, qui
" nesciunt cum quantâ difficultate sanetur oculus
" interioris hominis, ut possit intueri solem
" suum;——Illi in vos sæviant, qui nesciunt
" quibus suspiriis & gemitibus fiat, ut ex quan-
" tulacunque parte possit intelligi Deus. Pos-
" tremo, illi in vos sæviant, qui nullo tali errore
" decepti sunt, quali vos deceptos vident. In
" catholicâ enim ecclesiâ, ut omittam sincerissi-
" mam sapientiam, ad cujus cognitionem pauci
" spirituales in hâc vitâ perveniunt, ut eam ex
" minimâ quidem parte, qui homines sunt, sed
" tamen sine dubitatione, cognoscant: cæterum
" quippe turbam non intelligendi vivacitas, sed
" credendi simplicitas tutissimam facit." Au-
gustinus, Tom. vi. col. 116. fol. Basiliæ 1542,
contra Epist. Manichæi, quam vocant funda-
menti.

" We were of opinion, that other methods
" were to be made choice of, and that, to re-
" cover you from your errours, we ought not to
" persecute you with injuries and invectives, or
" any ill treatment, but endeavour to procure
" your attention by soft words and exhorta-
" tions, which would shew the tenderness we
" have for you: according to that passage of

13. " holy writ, " the servant of the Lord ought
" not to love strife and quarrels, but to be gen-
" tle, affable, and patient towards all mankind,
" and to reprove with modesty those who differ
" from him in opinion."—" Let them only treat
" you with rigour, who know not how difficult
" it is to find out the truth, and avoid errour.
" Let those treat you with rigour, who are igno-
" rant how rare and painful a work it is calmly
" to dissipate the carnal phantoms, that disturb
" even a pious mind. Let those treat you with
" rigour, who are ignorant of the extreme diffi-
" culty that there is to purify the eye of the
" inward man, to render him capable of seeing
" the truth, which is the sun, or light of the
" soul. Let those treat you with rigour, who
" have never felt the sighs and groans that a soul
" must have before it can attain any knowledge
" of the divine Being. To conclude, let those
" treat you with rigour who never have been
" seduced into errours, near a-kin to those you
" are engaged in. I pass over in silence that
" pure wisdom, which but a few spiritual men
" attain to in this life; so that though they
" know but in part, because they are men; yet
" nevertheless they know what they do know
" with certainty: for, in the catholic church, it
" is not penetration of mind, nor profound
" knowledge, but simplicity of faith, which puts
" men in a state of safety.

" Barbari quippe homines Romanæ, imo po-
" tius humanæ eruditionis expertes, qui nihil
" omnino sciunt, nisi quod à doctoribus suis
" audiunt: quod audiunt hoc sequuntur, ac sic
" necesse est eos qui totius literaturæ ac scientiæ
" ignari, sacramentum divinæ legis doctrina,
" magis quam lectione, cognoscunt, doctrinam
" potius retinere, quam legem. Itaque eis tra-
" ditio magistrorum suorum & doctrina invete-
" rata, quasi lex est, qui hoc sciunt, quod do-

CONFESSIO FIDEI.] " Periculosum nobis admodum at-
14. " que etiam miserabile est, tot nunc fides ex-
" istere, quot voluntates: & tot nobis doctrinas
" esse, quot mores: & tot causas blasphemia-
" rum pullulare, quot vitia sunt: dum aut ita
" fides scribuntur, ut volumus, aut, ita ut volu-
" mus, intelliguntur. Et cum secundum unum
" Deum & unum Dominum, & unum baptisma,
" etiam fides una sit, excidimus ab eâ fide, quæ
" sola est: & dum plures fiant, id esse cœpe-
" runt, ne ulla sit; conscii enim nobis invicem
" sumus, post Nicæni conventûs synodum, nihil
" aliud quam fidem scribi. Dum in verbis
" pugna est, dum de novitatibus quæstio est,
" dum de ambiguis occasio est, dum de autori-
" bus querela est, dum de studiis certamen est,
" dum in consensu difficultas est, dum alter alteri
" anathema esse cæpit, prope jam nemo est
" Christi, &c. Jam vero proximi anni fides,
" quid jam de immutatione in se habet? Pri-
" mum, quæ homousion decernit taceri: sequens
" rursum, quæ houmousion decernit & prædicat.
" Tertium deinceps, quæ ousiam simpliciter à
" patribus præsumptam, per indulgentiam ex-
" cusat. Postremum quartum, quæ non excu-
" sat, sed condemnat, &c. De similitudine au-
" tem filii Dei ad Deum patrem, quod misera-
" bilis nostri temporis est fides, ne non ex toto,
" sed tantum ex portione sit similis? Egregii
" scilicet arbitri cœlestium sacramentorum con-
" quisitores, invisibilium mysteriorum profes-
" sionibus de fide Dei calumniamur, annuas
" atque menstruas de Deo fides decernimus,
" decretis pœnitemus, pœnitentes defendimus,
" defensos anathematizamus, aut in nostri ali-
" ena aut in alienis nostra damnamus, & mor-
" dentes invicem, jam absumpti sumus invicem."
Hilarius, p. 211. in lib. ad Constantium Augustum. Basil. 1550, fol.

" It is a thing equally deplorable and danger-
" ous that there are at present as many creeds

15. " as there are opinions among men, as many
" doctrines as inclinations; and as many sources
" of blasphemy, as there are faults among
" us; because we make creeds arbitrarily, and
" explain them as arbitrarily. And as there is
" but one faith; so there is but one only God,
" one Lord, and one baptism. We renounce
" this one faith, when we make so many differ-
" ent creeds; and that diversity is the reason
" why we have no true faith among us. We
" cannot be ignorant that, since the council of
" Nice, we have done nothing but make creeds.
" And while we fight against words, litigate
" about new questions, dispute about equivocal
" terms, complain of authors, that every one
" may make his own party triumph; while we
" cannot agree, while we anathematise one an-
" other, there is hardly one that adheres to
" Jesus Christ. What change was there not in
" the creed last year! The first council ordained
" a silence upon the homousion; the second
" established it, and would have us speak; the
" third excuses the fathers of the council, and
" pretends they took the word ousia simply:
" the fourth condemns them, instead of excusing
" them. With respect to the likeness of the
" Son of God to the Father, which is the faith
" of our deplorable times, they dispute whether
" he is like in whole, or in part. These are rare
" folks to unravel the secrets of heaven. Ne-
" vertheless it is for these creeds, about invisible
" mysteries, that we calumniate one another,
" and for our belief in God. We make creeds
" every year, nay every moon we repent of what
" we have done, we defend those that repent, we
" anathematise those we defended. So we con-
" demn either the doctrine of others in ourselves,
" or our own in that of others, and, reciprocally
" tearing one another to pieces, we have been
" the cause of each other's ruin."

HÆRETICI.] "centur. Hæretici ergo sunt, sed non
V. 13. "scientes. Denique apud nos sunt hæretici,
16. "apud se non sunt. Nam in tantam se catho-
"licus esse judicant, ut nos ipsos titulo hæreticæ
"appellationis infament. Quod ergo illi nobis
"sunt & hoc nos illis. Nos eos injuriam divinæ
"generationi facere certi sumus, quod minorem
"patre filium dicant. Illi nos injuriosos patri
"existimant, quia æquales esse credamus. Veri-
"tas apud nos est; sed illi apud se esse præsu-
"munt. Honor Dei apud nos est: sed illi hoc
"arbitrantur, honorem divinitatis esse quod cre-
"dunt. Inofficiosi sunt, sed illis hoc est summum
"religionis officium. Impii sunt, sed hoc pu-
"tant esse veram pietatem. Errant ergo, sed
"bono animo errant, non odio sed affectu Dei,
"honorare se dominum atque amare credentes.
"Quamvis non habeant rectam fidem, illi ta-
"men hoc perfectam Dei æstimant caritatem.
"Qualiter pro hoc ipso falsæ opinionis errore
"in die judicii puniendi sunt, nullus scire potest
"nisi judex. Interim idcirco eis, ut reor, pa-
"tientiam Deus commodat, quia videt eos, etsi
"non rectè credere, affectu tamen piæ opinionis
"errare. Salvinus. $\frac{162}{339}$.

This bishop speaks here of the Arian Goths and Vandals: "They are, says he, Barbarians, "who have no tincture of the Roman politeness, "and who are ignorant of what is very com-"monly known among other men, and only "know what their doctors have taught them, "and follow what they have heard them say. "Men so ignorant as these find themselves "under a necessity of learning the mysteries of "the gospel, rather by the instructions that are "given them, than by books."

"The tradition of their doctors and the re-"ceived doctrines are the only rule they follow, "because they know nothing but what they "have taught them. They are then heretics, "but they know it not. They are so in our

17. "account, but they believe it not; and think
"themselves so good catholics, that they treat
"us as heretics, judging of us as we do of them.
"We are persuaded that they believe amiss con-
"cerning the divine generation, when they
"maintain the Son is inferior to the Father;
"and they imagine that we rob the Father of
"his glory who believe them both to be equal.
"We have the truth on our side, and they pre-
"tend it is on theirs. We give to God his due
"honour, and they think they honour him bet-
"ter. They fail in their duty, but they ima-
"gine they perform perfectly well; and they
"make true piety to consist in what we call
"impious. They are in a mistake, but with a
"great deal of sincerity; and it is so far from
"being an effect of their hatred, that it is a
"mark of their love of God, since, by what they
"do, they imagine they show the greatest re-
"spect for the Lord, and zeal for his glory.
"Therefore, though they have not true faith,
"they nevertheless look upon that which they
"have as a perfect love of God. It belongs
"only to the judge of the universe to know how
"these men will be punished for their errours
"at the last day. Yet I believe God will show
"compassion towards them, because he sees
"their heart is more right than their belief, and
"that, if they are mistaken, it is their piety
"made them err."

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TO THE

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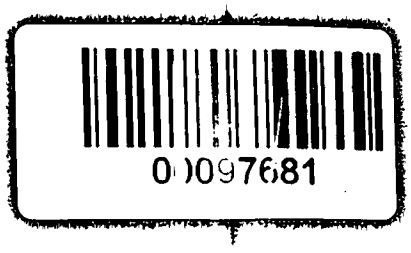
Thomas Davison, Lombard-street, Whitefriars, London.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